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THE COLEOPTERA
OF
THE BRITISH ISLANDS.

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THE
COLEOPTERA
OF
THE BRITISH ISLANDS.

*A DESCRIPTIVE ACCOUNT OF THE FAMILIES, GENERA, AND
SPECIES INDIGENOUS TO GREAT BRITAIN AND IRELAND,
WITH NOTES AS TO LOCALITIES, HABITATS, ETC.*

BY THE
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THE "ENTOMOLOGIST'S MONTHLY MAGAZINE."

VOL. II.
STAPHYLINIDÆ.



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ERRATA.

Vol. I. p. 160, l. 45, for "*Notomicrus*" read "*Neptosternus*."

„ p. 222 l. 36, for "*H. picicrus*, Sharp" read "*H. picicrus*, Thoms."

„ p. 221, l. 39, and 227, l. 11, for "antennæ" read "maxillary palpi."

„ p. 243, l. 31, for "*Oethebius*" read "*Ochthebius*."

Vol. II. p. 6, l. 26, after "a* Posterior coxæ conical" insert "PÆDERINÆ."

COLEOPTERA.

STAPHYLINIDÆ.

THE family Staphylinidæ probably contains more species than any other family of the Coleoptera; it is also one of the most natural and isolated families, but, at the same time, it is one of the most difficult to work by reason of the great affinity that exists between its members, which renders it no easy matter to find good and striking characters for its subdivision into tribes and genera.

The chief characters of the family are as follows:—

Elytra truncate, with a straight suture, never dehiscent, very much abbreviated, so that the greater part of the abdomen or hind body is exposed (except in certain Homaliina); wings, when present, completely folded beneath the elytra; abdomen or hind body composed of seven segments, all freely movable, and all entirely, or almost entirely,* corneous, even when more or less hidden by the elytra.

The above characters are those which chiefly distinguish the family: its members are often called Brachelytra, but, as other Coleoptera are distinctly brachelytrous, the term is erroneous; the species, however, belonging to other groups, which have the elytra abbreviated, are distinguished from the Staphylinidæ by differing from them in one or more of the additional characters above mentioned; the species of *Meloë*, for instance, have the elytra dehiscent; in *Cercus* and other Nitidulidæ, and also in the Histeridæ and Scaphidiidæ, and other more or less evidently brachelytrous Coleoptera, the segments of the abdomen concealed beneath the elytra are membranous and not corneous; in *Molorchus* (which has very short elytra, and the segments corneous) the wings are not folded beneath the elytra; in *Micropeplus*, which is still retained by many authors among the Staphylinidæ, the abdomen is not freely movable; and finally in the Pselaphidæ, which in many points are the closest allies of the Staphylinidæ, the abdomen is composed of five distinct segments only.

The following additional characters may also be noticed:—

Form variable, but as a rule more or less elongate and linear, rarely short and broad.

Head variable, inserted in the thorax, or exserted and constricted

* The first segment of the hind body in the Homalotæ, which is almost or quite concealed by the elytra, appears to be semi-membranous.

behind into a distinct and more or less narrow neck; eyes very rarely absent, as a rule not very conspicuous, but sometimes very large (as in *Stenus* and *Megalops*); two frontal ocelli present in the Homaliina, and one in Phlœobium, in all other genera wanting.

Antennæ variable in form, sometimes slender, sometimes more or less thickened towards apex, sometimes terminating in a distinct club; the method of insertion also differs considerably, and affords, as will be seen, very good characters for the subdivision of the family.

Mentum trapezoidal, anterior part separate; ligula membranous, rarely corneous; labrum usually transverse, either entire or bilobed; mandibles corneous, more or less projecting, sometimes very powerful, sometimes slender, but, as a rule, denticulate or serrate, and evidently intended for a carnivorous diet; maxillæ with two lobes, usually ciliate, maxillary palpi 4-jointed, with the last joint often very small and subulate (in *Aleochara* with a very minute accessory fifth joint); labial palpi usually 3-jointed, sometimes 2-jointed (as in *Myllæna*, *Diglossa*, &c.), or even apparently inarticulate; as a rule they are of normal form, but in *Myllæna* and a few other genera they are more or less setiform; in *Aleochara* there is an additional minute lobe which is usually regarded as a fourth joint; paraglossæ, as a rule, distinct.

Thorax very variable in shape, strongly reflexed beneath the body, the reflexed portion being often separated from the upper surface by a distinct ridge: it is usually visible when the insect is viewed sideways, but is sometimes strongly turned back beneath the body, so that the under surface of the thorax appears to be more or less excavated.

Prosternum variable, coxal cavities usually open behind; mesosternum short, episterna large, epimera distinct; metasternum usually moderately large, sometimes very short, episterna moderately large, epimera very variable, sometimes very small, or even obsolete. Legs variable in length and form; coxæ variable in length and relative position, and affording by their differences valuable characters for subdivision; tibiæ simple or dilated, sometimes spinose or denticulate, occasionally excised at apex; tarsi 5-, 4-, or 3-jointed, anterior pair often dilated especially in male, penultimate joint sometimes strongly bilobed (as in many species of *Stenus*, &c.); in many genera of the Aleocharinæ the front or the front and middle tarsi are 4-jointed, and the hind tarsi 5-jointed; each tarsus terminates in an onychium bearing two equal or subequal claws, which are usually simple, but occasionally are more or less distinctly denticulate at base.

On each side of the body there are ten stigmata: the prothoracic stigmata are sometimes visible and sometimes hidden by the sides of the thorax.

The hind body or abdomen is sometimes parallel-sided, sometimes strongly narrowed towards apex, and more or less conical; it is usually more or less setose, and very often bears at its apex two styliform processes called the "anal styles" (as in *Tachinus*, *Tachyporus*, *Philonthus*,

&c.); in many genera the modifications of the terminal segments in the different sexes are of great importance.

In the present work I have followed Dr. Sharp in exclusively speaking of this latter part of the body as the "hind body" and not as the "abdomen," and I have also followed him as regards his reckoning of the number of the segments; Erichson and Mulsant and Rey reckon from the first apparent segment, whereas Kraatz, Thomson, and Sharp calculate from the segment which is, as a rule, wholly or partially covered by the elytra: the seventh segment, therefore, of these latter authors and of this present work is the sixth segment as mentioned in the works of Erichson and Mulsant and Rey; the first segment, though usually hidden, is often more or less visible, so that the authors who reckon it are really more correct in so doing: the point, however, must be carefully noticed, or else confusion is sure to arise; it will be found again alluded to under the genus *Homalota*.

The larvæ of the Staphylinidæ, as a whole, are very closely related to one another, and both in shape and habits much resemble the perfect insect, being long and linear and very active, fierce, and voracious; they appear to bear a strong affinity towards the larvæ of the Carabidæ and certain Dytiscidæ; some however (such as *Syntomium*, &c.) are short and broad and seem to have some analogy with the Silphidæ, while others again are related to the Histeridæ and Nitidulidæ: descriptions of some of the more peculiar forms will be given under their separate genera, but the majority are so much alike, that only a few need be noticed.

The pupæ do not call for any particular description; they are partially covered with membrane, but the parts of the perfect insect are very distinctly visible; the form is more or less elongate and narrowed behind; the abdominal region is often strongly margined, and the "styli motorii" appear to be in many instances almost confined to the anterior margin of the thorax, and sometimes to be almost or entirely wanting; the cerci are very short, and often terminate in a short stiff seta.

The Staphylinidæ are for the most part carnivorous, although they are in great measure necrophagous, and to a certain extent vegetable feeders; they devour all kinds of larvæ and other insects, and some of the larger species are useful in destroying slugs, snails, and worms; one or two species (as *Velleius dilatatus*) are found in the nests of the hornet (*Vespa crabro*), and probably prey upon the larvæ; the greater number are found in moss, dead leaves, hotbeds and dunghills, decaying vegetable refuse, dead birds and animals, &c.; a large number, however, occur in fungi or at sap (as the *Boletobii*, *Gyrophænæ*, and many others); some are found in flowers (e.g. certain species of *Homalium*, *Eusphalerum*, &c.); many live under bark or in decaying wood, and are peculiarly fitted for this habitat by their very depressed form; others again occur solely on the banks of ponds and rivers, and may be taken in numbers by dashing water against the banks; such are certain *Steni* and *Bledii*, the latter of which often form burrows of very large extent, and may easily be detected

by the casts of earth which they throw up ; some species are only found on the coast close to or even considerably below high water-mark (as *Diglossa*, *Phytosus*, *Micralymma*, &c.) ; it is probable, however, that all these species are at least in part dependent for their subsistence on the various insects, larvæ, pupæ, or ova which they find in the dung, dead birds, fungi, flowers, &c., which they frequent, although no doubt they obtain a portion of their sustenance from the substances in which they take up their abode.

A considerable number of species are found in ants' nests ; some of these evidently exude a fluid like *Claviger* and the *Aphides*, which is devoured by the ants ; among these are *Lomechusa* and *Atemeles* ; it is possible, too, that some of them may act as scavengers of the nests ; it would seem, however, that their presence is not always a benefit to their hosts ; *Myrmedonia collaris*, at all events, has been observed to destroy ants : it is, however, quite possible that they were either strangers or feeble and sickly individuals, in which case the beetle would only be carrying out its proper duties ; it may, too, be noticed in passing, that *M. collaris* is considered by some authorities to be a non-myrmecophilous beetle ; if such is the case its carnivorous propensities need no explanation, as its presence among the ants it destroyed might have been merely the result of accident.

As a rule the colours of the Staphylinidæ are sombre, but some species are exceedingly handsome ; many have brilliant red elytra ; others are of a bright testaceous-red colour with black spots or abdominal rings, while others again are cyaneous with or without orange spots on the elytra : the pubescence as a rule is delicate, but occasionally (as in *Emus* and *Creophilus*) it is very conspicuous.

In habits the members of the family are very active, and run and fly with great swiftness, the wings being much more ample than might be judged from the size of the elytra ; some few, however, are rather slow in their movements, especially among the latter tribes, such as the *Oxytelina*, *Proteinina*, &c. ; certain species have the power of exhaling a strong and disagreeable odour, sometimes resembling the smell of rotten apples, sometimes the smothering smell of a candle that has just been blown out, while others exude from their mouth a slightly corrosive liquid ; a few species, like *Ocypus olens*, curl up their hind body and open their jaws, and thus assume a terrifying attitude, like the genus *Broscus* among the Carabidæ, while a considerable number (such as *Xantholinus*, *Gyrophæna*, &c.) roll themselves up into the smallest compass possible, and remain motionless until the danger has passed.

It has been stated above that in point of numbers the family Staphylinidæ probably exceeds all other families of the Coleoptera. In the Munich catalogue of Gemminger and Von Harold (vol. ii., 1868) over 4000 species are enumerated, and in the supplement issued by M. Duvivier in 1883 between 2000 and 3000 more are added. Within the last three or four years a great many new species have been described by Dr.

Sharp and other writers on the family, and there still remain vast fields yet unexplored in South America, Central Africa, &c., which are certain to yield a very large number of species; it is, therefore, impossible to at all estimate the number of species that will eventually be found to belong to the family: the genus ranges over the whole of the world from the Arctic to the Antarctic regions, and in all the intermediate countries; some of the tropical species are very fine and brilliantly coloured, but, as a rule, the hotter climates seem richer in the smaller forms than in the larger: certain species have a very wide range; thus *Que dius fulgidus* occurs as far north as Discovery Bay (from which locality a single specimen was brought by Captain Feilden, who accompanied the voyage of the *Alert* and *Discovery* in 1875-6), and extends over Greenland and the whole of North America and Europe, and as far south as the Atlantic Islands.

Upwards of 800 species of the family are found in Britain; owing to their great difficulty the Staphylinidæ were much neglected by our old collectors, and in fact in many of their collections they were scarcely represented. Leach and Stephens first brought them into prominence, but we are mainly indebted to the indefatigable labours of the late Dr. Power, and to the work and writings of Dr. Sharp, for the comparatively complete knowledge of the family as far as our fauna is concerned; as stated above, it is a very difficult matter to find satisfactory characters for the subdivision of the tribes and genera, and any tabular arrangement must be more or less unsatisfactory; the arrangement adopted below will, however, be probably found of service if studied in conjunction with the general descriptions.

For full particulars regarding the family the student is referred to the many excellent foreign works that have been written upon it. Among the chief of these the following may be mentioned:—"Genera et Species Staphylinorum" (Erichson), one of the most careful and useful monographs of any family yet published; "Histoire Naturelle des Coléoptères de France, Brévipennes" (Mulsant and Rey); "Skandinavien Coleoptera, Brachelytra" (Thomson); "Naturgesichte der Insecten Deutschlands, vol. ii., Staphylinidæ" (Kraatz); and numerous monographs on various groups and genera, such as Pandellé on the European Tachyporina (Annales de la Soc. Ent. Française, ix. 1869); Sharp on the British Homalotæ (Trans. Ent. Soc. London, 1869); Matthews on the genus Myllæna (Cist. Ent. iii. page 33), and others.

The family, as far as our fauna is concerned, may be divided into the following sixteen sub-families, which are fairly natural ones, but very uneven in point of numbers, two or three of them containing only one species in each:—

I. Antennæ inserted upon the front near the inner margin of the eyes.

i. Posterior coxæ large, contiguous; antennæ not terminated by a distinct club ALEOCHARINÆ.

- ii. Posterior coxæ small, widely separated; antennæ terminated by a distinct club STENINÆ.
- II. Antennæ inserted on the anterior margin of the head.
 - i. Antennæ distant; prosternum not developed in front of anterior coxæ STAPHYLININÆ.
 - ii. Antennæ approximate; prosternum developed in front of anterior coxæ XANTHOLININÆ.
- III. Antennæ inserted under the sides of the front.
 - i. Prothoracic stigmata conspicuous on removing the front coxa.
 - 1. Posterior coxæ transverse.
 - A. Antennæ filiform, not verticillate TACHYPORINÆ.
 - B. Antennæ capillary and verticillate TRICHOPHYINÆ.
 - 2. Posterior coxæ triangular, prominent; antennæ capillary and verticillate HABROCERINÆ.
 - ii. Prothoracic stigmata difficult to perceive on account of prominence of sides of prothorax.
 - 1. Anterior coxæ very small; antennæ inserted inside the base of the mandibles, terminated in a club EVÆSTHETINÆ.
 - 2. Anterior coxæ prominent, conical.
 - A. Vertex without ocelli.
 - a. Last joint of labial palpi dilated, very large, crescent-shaped; last joint of maxillary palpi large, not much shorter than penultimate OXYPORINÆ.
 - b. Last joint of labial palpi not dilated; last joint of maxillary palpi minute, often scarcely visible.
 - a*. Posterior coxæ conical.
 - b*. Posterior coxæ transverse.
 - a†. Posterior trochanters small, one-fifth the length of femora; head with distinct neck OXYTELINÆ.
 - b†. Posterior trochanters large, one-third the length of femora; head without distinct neck PHLÆOCHARINÆ.
 - B. Vertex with two ocelli HOMALIINÆ.
 - 3. Anterior coxæ transverse, sublinear.
 - A. Vertex without ocelli; elytra covering the greater part of hind body PROTEININÆ.
 - B. Vertex with one ocellus; elytra only slightly passing metasternum PHLÆOBINÆ.
 - 4. Anterior coxæ globose PIESTINÆ.

Of the above sub-families Dr. Sharp includes under the Oxytelinæ Erichson's Phlæocharinæ, Proteininæ, and Piestinæ, on the ground that it is impossible to separate them now that we are acquainted with a greater number of forms: in all these groups there is a great variation in the form of the anterior coxæ and the pieces of the prothorax adjacent to these, but the modifications are considered by Dr. Sharp to be too gradual to be used for classification, and he prefers as characters the structure of the tarsi and of the front of the head; for convenience sake, however, the sub-families have been retained in this work in their usual positions, as the characters are correct as far as our genera and species are concerned, and it would cause great confusion at present to alter the classification.

ALEOCHARINÆ.

With regard to this sub-family, Dr. Sharp (*Biologia Centrali-Americana*, Staphylinidæ, p. 145) writes as follows:—

“This sub-family is the most extensive and least studied of those comprised in the family, and its treatment in a satisfactory manner is a matter of extreme difficulty. Of the vast number of extra-European forms that no doubt exist but little is yet known, even the North-American forms having been hitherto neglected by Entomologists. If we add to this the fact that the Aleocharinæ are all minute or quite small insects of fragile and loosely articulated structure, with softer chitinous envelope than is usual in the Coleoptera, it will readily be comprehended that the classification of the components of the sub-family has scarcely commenced: the large number of species and genera at present registered in the sub-family (amounting probably to 2000 species and considerably more than 100 genera) renders it, however, advisable that some method shall be adopted in their arrangement, if only with the object of facilitating reference and of saving time; and I shall accordingly make use of that recently proposed by Mulsant and Rey for the species of France in the ‘*Histoire Naturelle des Coléoptères de France, Brévipennes, Aléochariens*,’ introducing, however, some modifications in order to render it more simple. In this scheme the number of joints of the tarsi is considered superior in importance to the condition of the trophi, on which Erichson and Kraatz, the principal previous writers on the family, chiefly based their genera and arrangement. It would be out of place to discuss here the comparative claims of these two methods to superiority, but it is clear that the advantages offered by the tarsal system, as regards facility of verification and simplicity of definition, are very great, and give it as a provisional method preponderant importance.”

In the present work I have followed Dr. Sharp in adopting the tarsal system; at the same time it must be acknowledged that the examination of the number of the tarsal joints is often attended with as much difficulty and takes as much time as the examination of the trophi, which latter I have dissected out in nearly all our genera of Staphylinidæ: if the tarsi of some species are at all gummed, it is almost impossible to determine the number of their joints, and some require mounting in balsam to ensure certainty as regards this point.

Dr. Sharp also makes considerable use of a character which has been to a certain extent employed by Thomson, and in greater measure by Rey: as this may be found of very great use by students, it is advisable to quote Dr. Sharp's words on the subject, as he appears to be the first who has used definite terms to express it; he says, “On examining some of the Staphylinidæ, such e.g. as a large *Xantholinus*, it will be observed that the middle coxæ are almost without true acetabula (or coxal cavities); this part of the limb, in fact, merely reposes on the surface of the breast,

which is more or less vaguely impressed for its accommodation. In other forms, e.g. *Aleochara*, it will be found, on the contrary, that the coxa is imbedded in an abruptly defined cavity surrounded entirely by a well-marked raised margin. Between the extreme forms mentioned a large number of intermediate stages exist, and in the Aleocharinæ offer a satisfactory and readily-observed method of differentiating the genera. When the two cavities exist entirely surrounded by a raised margin as in *Aleochara*, I have used the expression 'cavities complete:' the completion is effected on the inner side by a prolongation of the mesosternum between the coxæ meeting a prolongation from the metasternum: these prolongations may be called the mesosternal and metasternal processes, and are each defined by a fine raised border. When these two borders do not meet, I have designated the cavities as incomplete, and the space intervening between their extremities I have called the 'intercoxal isthmus:' this intercoxal isthmus is of variable length and breadth, but in calling it 'long' or 'short,' I have always used the words in reference to its extension in the longitudinal axis of the body."

According to the number of the tarsal joints, the Aleocharinæ may be divided into five tribes as follows:—

- | | |
|---|----------------|
| I. All the tarsi 5-jointed | ALEOCHARINA. |
| II. Anterior tarsi 4-jointed, intermediate and posterior tarsi 5-jointed | MYRMEDONIINA. |
| III. Anterior and intermediate tarsi 4-jointed, posterior tarsi 5-jointed | BOLITOCHARINA. |
| IV. All the tarsi 4-jointed | OLIGOTINA. |
| V. All the tarsi 3-jointed | DEINOPSINA. |

ALEOCHARINA.

This tribe contains thirteen British genera: one of these, *Gymnusa*, agrees with the rest as regards the number of joints in the tarsi, but differs widely from them in the form of the labial palpi, in which it rather closely approaches *Myllana*; in other respects also it is allied to this latter genus and to *Deinopsis*; for the sake, therefore, of uniformity these three genera have been described together at the end of the Aleocharinæ: the members of the tribe Aleocharina have all the tarsi 5-jointed.

I. Labial palpi of the ordinary form.

- i. Head not, or scarcely, contracted at base; border of thorax strongly reflexed, not, or scarcely, visible if viewed from side.

1. Thorax very plainly broader than elytra with the posterior angles strongly projecting HOMÆUSA, *Kraatz*.
2. Thorax not or scarcely broader than elytra (except in one or two instances in which the posterior angles are not projecting).

- A. Palpi with an extremely minute accessory joint; intermediate coxæ with cavities entirely surrounded by a raised margin ALEOCHARA, *Grav*.

- B. Palpi with the ordinary number of joints (maxillary palpi 4-jointed, labial palpi 3-jointed); intermediate coxæ with cavities not entirely surrounded by a raised margin.
- a. First joint of posterior tarsi about equal in length to the last joint MICROGLOSSA, *Kraatz*.
- b. First joint of posterior tarsi much longer than the last joint.
- a*. Hind body with the three first (apparent) segments feebly impressed transversely at base; hind body usually narrowed towards apex.
- a†. Labial palpi with joints gradually narrower OXYPODA, *Mannh.*
- b†. Labial palpi with the first two joints thickened THIASOPHILA, *Kraatz*.
- b*. Hind body with the three first segments strongly impressed transversely at base, fourth feebly impressed; hind body parallel-sided ISCHNOGLOSSA, *Kraatz*.
- ii. Head slightly contracted at base; border of thorax moderately reflexed, plainly visible if viewed from side OCYUSA, *Kraatz*.
- iii. Head strongly contracted at base, projecting laterally beyond apex of the thorax.
- A. First joint of posterior tarsi shorter than the two following united, and than the last joint; antennæ short PHILÆOPORA, *Er.*
- B. First joint of posterior tarsi more or less elongate, at least equal to the two following united, and not shorter than the last joint; antennæ long.
- a. Last joint of maxillary palpi at least one-third as long as the penultimate OCALEA, *Er.*
- b. Last joint of maxillary palpi minute, plainly less than one-third as long as the penultimate.
- a*. Mesosternum carinate ILYOBATES, *Kraatz*.
- b*. Mesosternum not carinate.
- a†. Antennæ with joints 2-3 equal CHILOPORA, *Kraatz*.
- b†. Antennæ with second joint plainly longer than third CALODERA, *Mannh.*
- II. Labial palpi setiform GYMNUSA, *Er.*

HOMÆUSA, *Kraatz*.

This genus comprises three species (from Europe, North America, and Japan), which are distinguished by having a broad convex thorax, which is plainly broader than the elytra, and by the hind body being strongly, though gradually, narrowed from base to apex; two species occur in Europe, of which one is found in Britain; it is usually taken in or near decayed trees in company with *Formica fuliginosa*.

H. acuminata, *Maerk.* Pitchy-red with the head and central portion of hind body more or less dark, and the apex of hind body rather broadly testaceous; head much narrower than thorax; antennæ stout and rather short, thickened towards apex, more or less dusky, with the basal and apical joints lighter, third joint shorter than second, 5-10

strongly transverse ; thorax large, broad, and convex, with the posterior angles projecting, finely punctured ; elytra short, about as long as thorax and somewhat more distinctly punctured ; hind body strongly narrowed from base to apex, with distinct raised margin, finely punctured ; legs testaceous red. L. $2-2\frac{1}{2}$ mm.

Very local, and usually taken sparingly where it is found ; Chatham ; Tonbridge ; Woburn, near Bedford ; Tilgate Forest ; Upnor and Bromley, Surrey : Dr. Power has taken a considerable number at the foot of a tree at Mickleham in runs of *Formica fuliginosa*, by cutting up the turf for a breadth of three inches on each side of the run and shaking it over paper ; it has also been found with *Formica fusca*.

ALEOCHARA, Gravenhorst.

The genus *Aleochara* contains about 200 known species, which are widely distributed over the greater part of the world ; the chief distinguishing mark of the genus is the fact that the palpi are provided with a minute accessory joint, or, as some authors prefer to call it, an "articulated lobe," so that the maxillary palpi are 5-jointed and the labial palpi 4-jointed, a peculiarity that is not found in any other genera of Coleoptera hitherto discovered.

It is probably owing to the desire to class together all the species exhibiting this character that has caused the genus *Aleochara* to be made up of several apparently very different groups ; one of these, the sub-genus *Polystoma* of Stephens, containing *H. algarum*, *grisea*, and *obscurella*, Thomson separates entirely from *Aleochara*, and places it between *Plataræa* (*Homalota brunnea*, &c.) and *Halobrectha* (*Homalota puncticeps* and its allies) ; in many ways this appears a better position for it, but the presence of the accessory joints of the palpi certainly precludes it from being taken out of the neighbourhood of *Aleochara*. The arrangement observed below is partly that of Mulsant and Rey, but I have followed Heyden, Reitter, and Weise in combining *Aleochara* i. sp. and *Baryodma* : the character afforded by the reflexed margin of the thorax is perhaps not a very evident one, but it is constant, and may be distinguished even in carded specimens if the insect be examined sideways from a little beneath.

- | | |
|--|--|
| I. Hind body with strong prominences in male ; sides of thorax moderately reflexed beneath | Sub-Gen. CERANOTA, Steph. |
| II. Hind body without prominences in male. | |
| i. Sides of thorax very strongly reflexed beneath, presenting a hollow surface on the underside | Sub-Gen. ALEOCHARA i. sp.
Sub-Gen. BARYODMA, Thoms. |
| ii. Sides of thorax moderately or almost horizontally reflexed beneath, presenting a flat or almost flat surface on the underside. | |
| 1. Antennæ and legs elongate ; upper surface shining ; facies of an <i>Ocalea</i> . | Sub-Gen. RHEOCHARA, Muls. et Rey. |
| 2. Antennæ and legs short ; upper surface dull, strongly pubescent . . . | Sub-Gen. POLYSTOMA, Steph. |

Of these sub-genera the second contains the bulk of our species; the sub-genus *Ceranota* contains only one species, *A. ruficornis*, one of the most distinct of the whole genus; the sub-genus *Rheochara* comprises two extremely rare insects, *A. procera* and *spadicea*, which hardly resemble an *Aleochara* at all, and are scarcely ever likely to be met with by a collector; while the sub-genus *Polystoma* contains three dull-brown species, which are confined to the sea coast and are found under sea-weed and marine refuse; as a matter of fact, therefore, the table just given will hardly need referring to by the student, and is adopted rather as ensuring accuracy of classification, and as separating those species of the genus that evidently ought not to be classed together.

The *Aleocharæ* are found in dung, hotbeds, and decaying vegetable matter generally; some of them are confined chiefly to dead animals or birds, while a few are found in moss, and under reeds, &c., on the banks of streams.

(Sub-Gen. **Ceranota**, Steph.)

A. ruficornis, Grav. Shining, dark-ferruginous, with the head blackish or dark brown, and the elytra, margins of thorax, and apex of intermediate segments of hind body reddish; head small, antennæ rather long, longer than head and thorax, with third joint plainly longer than second, slightly thickened towards apex, but much more slender than in the succeeding species, fuscous, with base and apical joints lighter; thorax broader than long, about as broad as elytra, convex, distinctly punctured; elytra rather longer than thorax, somewhat rugosely punctured, and rather thickly pubescent; hind body only moderately contracted to apex, very strongly margined, basal segments rather coarsely and deeply punctured, apical segments shallowly and more obsoletely punctured; legs reddish testaceous. L. $5-7\frac{1}{2}$ mm.

Male with a transverse raised plate on the second (apparent) segment of hind body, a large blunt raised tooth-like prominence on the third segment, a small tubercle on fourth, and the sixth depressed in middle and raised somewhat semicircularly at apex, and furnished with three more or less obsolete small prominences near apical margin.

One of the finest of our indigenous Aleocharidæ; rare, although somewhat widely distributed; in moss near nests of *Formica rufa* or *fusca*, by sweeping, running on pathways, &c. Hampstead; Charlton, Surrey; Shipley, near Horsham; Repton; Langworth Wood, Lincoln; Gumley, Market Harborough; Scarborough; Llangollen; Studley, near Ripon; Liverpool; Devonshire; Hartlepool; Northumberland district (Gosforth, Ravensworth, and Lanercost). Scotland, local, Tweed, Forth, and Solway districts.

This species varies very much in size; I have a fine male taken near Lincoln, nearly 8 mm. in length.

(**Aleochara**, i. sp. (Sub-Gen. **Baryodma**, Thoms. pars.).)

I. *Mesosternum* simple.

- i. Antennæ with fourth joint strongly transverse, joints 5-10 equal in breadth.
 - 1. Elytra reddish A. FUSCIPES, F.
 - 2. Elytra black A. LATA, Grav.
 - ii. Antennæ with fourth joint hardly transverse; joints 5-10 gradually slightly broader; elytra unicolorous black or pitchy.
 - 1. Size larger (4-5 mm.); antennæ more thickened towards apex A. BREVIPENNIS, Grav.
 - 2. Size smaller (3-3½ mm.); antennæ less thickened towards apex A. FUMATA, Grav.
- II. Mesosternum with a longitudinal carina.
- i. Length 3½-5 mm.
 - 1. Thorax evenly punctured.
 - A. Elytra rounded at postero-external angles; elytra black with a more or less strongly marked red spot at apex.
 - a. Hind body parallel-sided until just before apex; thorax with strong lateral setæ A. TRISTIS, Grav.
 - b. Hind body narrowed from base to apex; thorax without lateral setæ A. BIPUNCTATA, Ol.
 - B. Elytra more or less sinuate at apex near postero-external angles.
 - a. Elytra black with a more or less strongly marked red spot at apex.
 - a*. Antennæ more slender; legs longer; hind body more closely and evidently punctured A. CUNICULORUM, Kr.
 - b*. Antennæ stouter; legs shorter; hind body less closely punctured A. MACULATA, Bris.
 - b. Elytra black (occasionally dark brown).
 - a*. Hind body strongly punctured, at least at base.
 - a†. Antennæ not strongly thickened, joints 6-10 only moderately transverse; apical segments of hind body evidently less closely punctured than basal segments A. LANUGINOSA, Grav.
 - b†. Antennæ rather strongly thickened, joints 6-10 twice as broad as long; hind body evenly punctured A. LYGÆA, Kr.
 - b*. Hind body feebly punctured or almost smooth.
 - a†. Antennæ not strongly thickened, joints 6-10 only moderately transverse; hind body visibly but diffusely punctured A. VILLOSA, Mann.
 - b†. Antennæ strongly thickened, joints 6-10 twice as broad as long; hind body almost impunctate A. MÆSTA, Grav.
 - c. Elytra red or reddish castaneous, sometimes darker towards sides and suture.
 - a*. Hind body plainly narrowed from base to apex A. MYCETOPHAGA, Kr.
 - b*. Hind body almost parallel-sided until just before apex.
 - a†. Antennæ thicker, strongly thickened towards apex, joints 6-10 twice as broad as long A. MÆRENS, Gyll.
(*lugubris*, Aubé.
fungivora, Sharp).

- b†. Antennæ more slender, feebly thickened towards apex, joints 6-10 not strongly transverse *A. BRUNEIPENNIS*, Kr.
(*sanguinea*, L.?).
2. Thorax shining black, with two rows of punctures on disc, and diffuse punctures at sides.
- A. Each elytra with a red spot at apex *A. NITIDA*, Grav.
- B. Elytra unicolorous black *V. BILINEATA*, Gyll.
- ii. Length not exceeding 2-3 mm.
1. Form broad in middle, strongly narrowed to apex; hind body thickly and evenly punctured *A. MORION*, Grav.
2. Form narrow more or less linear *A. INCONSPICUA*, Aubé.

A. fuscipes, F. Rather broad, and somewhat convex, shining black, with the base of the antennæ and the legs reddish or pitchy-red, and the elytra red-brown with the sides darker; head rather small, antennæ short very strongly thickened from the fourth joint inclusive, third joint plainly longer and thicker than second; thorax transverse, convex, narrowed in front, rather closely punctured; elytra very transverse, shorter than thorax, depressed, with posterior angles rounded, very plainly and somewhat rugosely punctured; hind body narrowed moderately at apex, black with apical segments sometimes lighter, strongly and diffusely punctured. L. 5-7 mm.

Male with the seventh segment of hind body slightly emarginate and finely crenulate on its apical margin.

In carcasses, haystack refuse, vegetable detritus, &c.; very common throughout the kingdom.

A. lata, Grav. This species is often considered a mere colour variety of the preceding, the elytra being black or very dark blackish brown; it is however rather broader, with the punctuation of the elytra slightly stronger; the chief difference however lies in the structure of the seventh segment of the hind body of the male, which has the apex crenulated, as in the preceding species, but the crenulations are much finer and almost twice as numerous as in *A. fuscipes*; the legs are pitchy. L. 5-6 mm.

Found under the same circumstances as the preceding, but not so common, and confined to the southern districts of the Midlands; New Forest (common); Deal, Sheerness, Chatham, Mickleham, Tonbridge; Hastings; Glanvilles Wotton; also occurs near Bristol and in Bewdley Forest.

A. brevipennis, Grav. Entirely black, shining, finely and thickly pubescent; antennæ rather long, black with base reddish, joints 2-3 elongate, third slightly longer than second, 4-10 gradually a little wider; thorax convex, broader than long, narrowed in front, thickly and finely punctured; elytra very short, hardly as long as thorax, strongly transverse, dull black, very thickly pubescent, strongly and asperately punctured; hind body almost parallel-sided until a little before apex, strongly but not closely punctured towards base, less closely towards apex; legs pitchy, tarsi reddish. L. 4-5 mm.

Male with the hind margin of seventh segment of hind body very slightly sinuate and obsoletely crenulated.

This species may easily be distinguished from *A. tristis* and *bipunctata* by its very short unicolorous black elytra and the strong and diffuse punctuation of the hind body: the antennæ are entirely different from those of *A. lata*, and it is a much narrower and duller insect than that species.

In moss, at roots of grass in marshy places, occasionally in carrion, &c.; not common; Wimbledon, Esher, Caterham, Mickleham, Shirley, Whitstable, Southend, Cowley, Reigate, Chobham, Bearsted; Hastings; New Forest; Brighton; Dawlish; Ilfracombe. Scotland, local, Forth, Tay, Solway, and Clyde districts. Ireland, Galway (J. J. Walker).

A. fumata, Grav. Closely allied to the preceding, of which it is usually considered only a variety: it differs in being smaller and rather more shining, with the pubescence of the thorax and elytra shorter; the antennæ are proportionally more elongate, and of a darker colour, more slender towards the base and less thickened towards apex; the elytra are shorter, not so strongly, but a little less closely punctured; the punctuation, also, of the hind body is evidently less close, especially towards apex. L. $3\frac{1}{2}$ –4 mm.

In Dr. Sharp's series some of the specimens have the elytra reddish and the antennæ and legs entirely ferruginous.

Rare; Soham, Cambridge (Champion); Scotland, Clyde and Solway districts (Sharp).

A. tristis, Grav. (*Baryodma (Polychara) tristis*, Muls. et Rey). Rather long, finely and somewhat thickly pubescent, the pubescence being somewhat erect, shining black with a rather distinctly marked red spot at the apex of each elytron; head rather strongly, but not thickly, punctured, antennæ rather short and stout, pitchy, with the base lighter, plainly thickened towards apex, third joint a little longer than second, 5–10 strongly transverse; thorax broader than long, narrowed in front, convex, rather strongly punctured, pubescent, with rather strong outstanding setæ; elytra strongly transverse, plainly shorter than thorax, broadly rounded at the postero-external angles, thickly and rugosely punctured; hind body rather long, parallel-sided in front and narrowed behind, closely and strongly punctured throughout; legs pitchy, tarsi reddish. L. 5–6 mm.

Male with dorsal plate of seventh segment of hind body slightly emarginate, ventral plate produced and ciliate.

In dung; rather common in the London district, Birch Wood, Eltham, Reigate, Mickleham, Cowfold, Esher, Chatham, Whitstable; Deal: it has also occurred in the New Forest, and has been doubtfully recorded from Devonshire, but appears to be confined to the south and south-eastern parts of England.

A. bipunctata, Ol. (*Baryodma bipunctata*, Thoms.). Black, shining, broad in front and strongly narrowed behind, with fine short

pubescence, with a broad ill-defined red marking at the apex of each elytron; head rather plainly punctured, antennæ slightly thickened towards apex with the third joint equal to the second, black with base lighter; thorax broader than long, convex, narrowed in front, finely and thickly punctured; elytra strongly transverse, plainly shorter than thorax, very closely and rugosely punctured, rather dull; hind body not elongate, broad at base and plainly narrowed from base to apex, very closely punctured towards base, less closely towards apex, with very strong raised margins; legs reddish, femora often darker. L. 4–5 mm.

Male with the seventh segment of hind body broadly sinuate and obsoletely crenulate on apical margin.

This species may at once be distinguished from *A. tristis*, which it somewhat resembles, by its much less parallel shape, the gradual narrowing of the hind body from base to apex, the absence of outstanding setæ on the thorax, and the more obscure and ill-defined red markings on elytra.

In dung, moss, haystack refuse, &c.; very widely distributed from Manchester downwards, but it can hardly be called common, except perhaps in the London district: it appears to become rarer further north, and in Scotland is scarce, having occurred only sparingly in the Forth and Solway districts. Ireland, Waterford (Power), and Galway (J. J. Walker).

A. cuniculorum, Kraatz (*bisignata*, W. C., *Baryodma* (*Polychara*) *cuniculorum*, Muls. et Rey). Elongate, rather narrow, finely and somewhat thickly pubescent, shining black, with a more or less plainly marked red patch at the apex of each elytron; head rather sparingly punctured; antennæ feebly thickened towards apex, third joint hardly longer than second, joints 6–10 moderately transverse about one and a half times as broad as long; thorax about a third broader than long, narrowed in front, convex, finely and rather thickly punctured; elytra as long as thorax, transverse, thickly, and rather rugosely, punctured; hind body rather long gradually and not strongly narrowed to apex, finely and thickly punctured in front, almost smooth behind; legs red or pitchy red. L. $3\frac{1}{2}$ –4 mm.

Male with dorsal plate of seventh segment of hind body slightly sinuate and very finely ciliate, ventral plate prolonged and set with long cilia.

Sandy places; in dung, dead animals, &c.; also near the burrows of rabbits; rare; Maidstone, Shirley near Croydon, Richmond Park, West Wickham, Birch Wood, Darenth, Bearsted; Hayling Island; Guestling, near Hastings; Scotland, rare, Forth district only.

This species appears to differ very little from *A. bisignata*, Er., with which it has been considered synonymous; Mulsant and Rey separate *A. cuniculorum* and *A. bisignata*, but unite *A. cuniculorum* and *A. maculata*.

A. cuniculorum is very variable in size, especially in breadth, some specimens being rather broad and some very slender.

A. maculata, Bris. Very like the preceding but broader, with

longer and stouter antennæ, of which the last joint is very long; the legs are shorter (the middle tarsi especially being shorter) and have the femora darker; the body is more sparingly clothed with golden pubescence, and the hind body is less closely punctured: the species somewhat resembles *A. nitida*, but is at once distinguished from it by its evenly punctured thorax. L. $3\frac{1}{2}$ –4 mm.

A single specimen taken in shingle on the banks of the Lyn, North Devon, by the Rev. H. S. Gorham.

A. lanuginosa, Grav. (*Baryodma* (*Polychara*) *lanuginosa*, Muls. et Rey). Shining black, with moderate pubescence which is more or less erect; head rather strongly and diffusely punctured, antennæ not strongly thickened towards apex, entirely black or with the first joint pitchy, third joint a little longer than second, 5–10 not strongly transverse; thorax broader than long, slightly narrowed in front, rather finely and thickly punctured; elytra unicolorous black, transverse, about as long as thorax, sinuate towards the postero-external angles, thickly and rugosely punctured; hind body parallel-sided towards base, narrowed at apex, basal segments thickly punctured on their basal half only, apical segments much more finely punctured; legs reddish or pitchy. L. 3–6 mm.

Male with the dorsal plate of seventh segment of hind body slightly emarginate and distinctly denticulate on its apical margin (the denticulations numbering from twelve to sixteen), ventral plate prolonged and furnished with long cilia.

In dung, haystack refuse, decaying sea-weed and vegetable refuse generally; very abundant; the commonest species of the genus, but one that often proves deceptive by reason of the great variation in the size of the specimens.

A. lygæa, Kr. (*Baryodma* (*Polychara*) *lygæa*, Muls. et Rey). Very like the preceding, with which it may very easily be confounded, but distinguished by its generally smaller and narrower size, and less long and erect pubescence; the best character, however, lies in the punctuation of the hind body, which is evenly punctured throughout, whereas in *A. lanuginosa* the apical half of the front segments is smooth, and the apical segments are very sparingly punctured; the antennæ also are much more plainly thickened, and have the penultimate joints more strongly transverse, and the male characters are different, the dorsal plate of the seventh segment of hind body being simply subtruncate. L. 3–4 mm.

In dung and decomposing vegetable matter, also in carrion; rare, but very probably overlooked. Tonbridge, Eltham, Shirley; Scotland, very rare, Tay and Solway districts.

A. villosa, Mann. (*Baryodma* (*Polychara*) *villosa*, Muls. et Rey). This species also comes near *A. lanuginosa*, but is narrower and more linear; the antennæ are longer and thinner, and the thorax is proportionally narrower, being slightly narrower than the elytra; the

elytra are not so distinctly sinuate at the posterior angles; the hind body is much more sparingly and feebly punctured than in either of the two preceding species, with the exception of the apical segment, which is thickly and plainly punctured; the slender antennæ and narrower thorax, as well as the duller appearance of the thorax and elytra, will serve to separate it from *A. lygæa* and *A. mæsta*, between which two species it is intermediate as regards the punctuation of the hind body. L. $3\frac{1}{2}$ –4 mm.

Rare; in decaying vegetable refuse; first introduced by Mr. Bold (Ent. Mo. Mag. vii. 275) on specimens from Newcastle-on-Tyne; Scarborough (pigeon-cotes, Lawson); Leamington, Knowle near Birmingham, and Ragley Park (W. G. Blatch); Scotland, Braemar (Sharp).

A. mæsta, Grav. (*Baryodma* (*Polychara*) *mæsta*, Grav.). This species bears a somewhat close resemblance to *A. lanuginosa* and its allies, but may at once be distinguished by its almost impunctate and shining hind body, the apical segments of which are almost entirely smooth; as a rule it has the legs and antennæ more or less reddish, and the elytra are sometimes dark reddish brown; the antennæ are more strongly thickened and have the penultimate joints more transverse than in *A. lanuginosa* or *A. villosa*, and in this point it resembles *A. lygæa*, from which it may be easily separated by its sculpture; it is broader and less linear than *A. villosa*, and has the elytra much more coarsely punctured; in some points it resembles darker specimens of *A. mærens*, but has the antennæ less thickened and the hind body less evidently punctured. L. 3–4 mm.

Male with the dorsal plate of seventh segment of hind body truncate or almost truncate, and finely and obsoletely crenulate on apical border, ventral plate prolonged and furnished with long cilia.

In moss, dung, haystack refuse, sea-weed, &c.; common and widely distributed throughout England and the southern part of Scotland; Ireland, Dublin and Waterford, and probably widely distributed.

A. mycetophaga, Kr. (*Baryodma* (*Polychara*) *mycetophaga*, Muls. et Rey). Rather elongate, broader in front, and much narrowed behind, finely and rather thickly pubescent; pitch-black, with the elytra, apex of hind body, and often the apex of the several segments of the latter reddish brown; head finely punctured, antennæ pitchy with reddish base, rather strongly thickened from the fifth joint inclusive, joints 5–10 strongly transverse; thorax broader than long, narrowed in front, with sides strongly rounded, finely and rather thickly punctured; elytra hardly as long as thorax, strongly transverse, very thickly and somewhat rugosely punctured; hind body gradually but distinctly narrowed from base to apex, thickly punctured towards base, rather sparingly towards apex; legs red. L. $3\frac{1}{2}$ –4 mm.

Male with the seventh segment of hind body slightly emarginate and obsoletely crenulate on apical margin.

In decaying fungi; rare; Coombe Wood, Surrey; Birch Wood; Tilgate Forest; Reigate; Petworth; Hastings; New Forest; apparently confined to the south and south-east of England.

A. mœrens, Gyll. (*fungivora*, Sharp, *lugubris*, Aubé, *Baryodma* (*Polychara*) *mœrens*, Muls. et Rey). This species much resembles the preceding in general appearance, but is easily distinguished by its more shining upper surface, and especially by its more parallel form, the hind body being almost parallel-sided for the greater part of its length, and only narrowed at apex; the pubescence is less close, and the antennæ are a little longer; the hind body also is less closely punctured; there is also a difference in the relative length of the joints of the tarsi; the male characters are much as in the preceding species. L. 4 mm.

In carrion, haystack refuse, fungi, &c.; very rare; Sheerness and Birch Wood, Kent; Winchester; Wicken Fen; Knowle, near Birmingham; Burton-on-Trent; Scotland, very rare, in decaying fungus, Solway, Tay, and Dee districts.

A. brunneipennis, Kr. (*sanguinea*, L., *Baryodma* (*Polychara*) *sanguinea*, Muls. et Rey, *mœrens*, Thoms. nec Gyll., *lugubris*, Sharp's Cat.). This species is very like the preceding, but may be distinguished by its longer and more slender antennæ, of which the penultimate joints are evidently less transverse, rather longer elytra, and the somewhat more distinct punctuation of the apical segments of the hind body; it is black, shining, with the elytra reddish; head rather sparingly punctured; antennæ only feebly thickened towards apex, rather long, pitchy with the three first joints clear red, third joint a little longer than second, fourth about as long as broad, joints 5-10 slightly transverse; thorax broader than long, narrowed in front, about as broad at base as base of elytra, finely punctured; elytra red with sides and suture narrowly darker, rugosely punctured; hind body subparallel, narrowed near apex, finely punctured, more plainly towards base, less plainly towards apex; legs red. L. 4 mm.

Male with the ventral plate of seventh segment of hind body truncate and very obsoletely crenulate on apical border, dorsal plate produced and furnished with long cilia.

Very rare; in dead animals; nine specimens taken by Dr. Sharp at St. Mary's Cray, Kent. I do not know of any other specimens of the true *A. brunneipennis*.

The synonymy of these two last species is very confusing, and I may be wrong regarding it in one or two points; I have, however, worked the species from the specimens in Dr. Sharp's collection.

A. nitida, Grav. (*Baryodma* (*Coprochara*) *nitida*, Muls. et Rey). An exceedingly variable species both as regards length and breadth; black, shining, with a sharply defined red spot at the apex of each elytron; pubescence rather long, but somewhat scanty; head sparingly punctured, disc sometimes almost smooth, antennæ short, thickened towards apex, black with the base obscurely pitchy, joints 4-10 plainly transverse; thorax broader than long, narrowed in front, as broad at base as base of

elytra, diffusely and distinctly punctured at sides, with a smooth longitudinal space on centre of disc bounded by two somewhat irregular but plainly traceable rows of strong punctures (this character at once separates the species from all others); elytra about as long as thorax strongly and thickly punctured; hind body almost parallel-sided, thickly and evenly punctured, sixth segment a little more sparingly than the others; legs pitchy black, knees and tarsi lighter. L. 3–5 mm.

Male with the dorsal plate of seventh segment of hind body finely crenulate on apical border, ventral plate distinctly prolonged and ciliate.

In dung, haystack refuse, &c.; generally distributed and common throughout England and Wales, Scotland and Ireland.

V. bilineata, Gyll. This variety differs from the type form in having no red spots at the apex of the elytra, which are unicolorous shining black; some authors consider it a separate species, on the ground that the size is a little larger, and the antennæ less thickened, with the fourth joint slightly longer; the punctuation also of the head and thorax is said to be more diffuse; the structural differences, however, do not seem to be sufficiently marked to allow of its being considered a species, especially if we consider the extreme variability of *A. nitida*: Mulsant and Rey (Brév. Aléochaires, 1874, p. 155) describe three named varieties which differ in the size and shape of thorax, coloration of elytra, and punctuation of hind body, and these are connected by many gradations.

Found in similar localities, and often in company with the type, but not nearly as common, although widely distributed; Scotland, Tweed, Forth, and Dee districts.

A. morion, Grav. (*Baryodma morion*, Muls. et Rey). This very small species has somewhat the appearance at first sight of one of the black Homalotæ with hind body narrowed to apex (such as *H. aterrima*); it is dull black, finely pubescent, rather broad in front and strongly narrowed behind; head finely but distinctly punctured; antennæ black, with base reddish, somewhat thickened towards apex, third joint a little longer than second, 5–10 strongly transverse; thorax almost twice as broad as long, as broad at base as base of elytra, finely and closely punctured; elytra strongly transverse, a little longer than thorax, sinuate near postero-external angles, thickly and rugosely punctured; hind body gradually narrowed from base to apex (as in *A. bipunctata*), thickly punctured towards base, apical segments less punctured, and more shining; legs reddish or pitchy-red. L. $1\frac{1}{2}$ – $2\frac{1}{4}$ mm.

Male with the dorsal plate of seventh segment of hind body slightly emarginate and crenulate on its apical border (the crenulations numbering six or eight), ventral plate much prolonged.

In dung, &c.; common and widely distributed in England and Wales and the southern part of Scotland, but very often overlooked; Ireland, near Waterford, and probably common.

(*A. inconspicua*, *Aubé*. Elongate, rather narrow, glossy black, rather thickly clothed with very pale ash-coloured pubescence, especially on the thorax and elytra; head rather finely and sparingly punctured, antennæ black with lighter base, rather slender and comparatively long, third joint longer than second, joints 5–10 slightly transverse; last joint long in the male (as long as the three preceding), less elongate in female; thorax less transverse than in *A. morion*, finely punctured; elytra strongly transverse, about as long as thorax, rather strongly and thickly punctured, the punctuation being much stronger than that of thorax; hind body almost parallel-sided, with the front segments strongly grooved transversely, the grooves being strongly and thickly punctured, hinder segments finely punctured; legs pitchy, knees and tarsi red. L. $2\frac{1}{2}$ mm.

Male with the dorsal plate of seventh segment of hind body truncate and obsoletely crenulate on its apical border, ventral plate strongly prolonged and ciliate; last joint of antennæ as long as the three preceding.

Very doubtful; a single specimen was brought forward by Mr. Waterhouse from the dispersed collection of Mr. Jeakes (probably captured by Mr. Squire), with no note of its locality; it was, however, noted as British: under the circumstances it seems better to regard it as merely left in the British list provisionally; the species is moderately common in France, in moss in forests.)

(Sub-Gen. ***Rheochara***, Er)

There is considerable difficulty concerning this sub-genus, which, according to Mulsant and Rey, contains but one European species, *A. spadicea*, the other apparently closely allied species, *A. procera*, being referred, in accordance with the views of Erichson, to *Ocalea*, on the ground that there is no visible supplementary joint to the palpi; the absence of this would of course be conclusive, but, if such is really the case, it seems strange that it has ever been classed under *Aleochara*, except perhaps through its close resemblance to *A. spadicea*, which may have caused a mistake. In the catalogue of Heyden, Reitter, and Weise both species are placed under *Aleochara*: the species are so extremely rare in Britain that it appears doubtful whether we possess them both; the slender legs and antennæ and *Ocalea*-like appearance will at once separate them from all other species of *Aleochara*.

A. spadicea, Er. Elongate, finely pubescent, shining pitchy-black, with the thorax and elytra chestnut brown or rufo-piceous, the latter being lighter; head large, finely and sparingly punctured, antennæ rather long, slightly thickened towards apex, ferruginous with the first joint lighter, joints 2–3 elongate of about equal length, 4–10 gradually a little shorter and thicker, but the penultimate joints are only slightly transverse, last as long as the two preceding, pear-shaped or oval; thorax transverse with sides rounded, as broad as elytra, distinctly punctured;

elytra transverse, about as long as thorax, rather strongly and rugosely punctured; hind body somewhat parallel-sided until near apex, pitchy black, with the intersections of segments more or less plainly, and the apex, lighter, front segments transversely grooved at base, the grooves being rather thickly punctured, apex of each segment and the whole of the last segments more sparingly punctured or almost smooth; legs reddish testaceous, posterior tarsi elongate. L. $4\frac{1}{2}$ mm.

Male with the dorsal plate of seventh segment of hind body simple or obsoletely denticulate, ventral plate strongly produced; sixth segment sinuate in middle of posterior border, and with a smooth space in front of sinuation, which is wanting in the female.

Very rare; Cumberland (J. J. Brewer); sent by Mr. E. W. Janson to Dr. Kraatz, and returned by him labelled, "Ab Aleochara spadicea vix distincta." There is a specimen in Dr. Sharp's collection without name or locality.

A. procera, Er. In the description given of the insect on which *A. procera* was introduced as a British species, Mr. Rye (Ent. Ann. 1865, p. 49), says, "It resembles *A. spadicea*, but is larger, with the head more rounded, the thorax a little shorter, and impressed at the base, with the anterior angles more rounded, and the segments of the abdomen more thickly punctured at the base;" the characters, however, which appear to distinguish *A. procera*, viz. the more transverse penultimate joints of the antennæ and the almost smooth hind body (v. Muls. et Rey, l. c. p. 477), are not mentioned: as Mr. Rye's description will apply to a larger variety of *A. spadicea*, it seems very probable that we do not possess *A. procera* at all, but, as I have not had the opportunity of examining the very few specimens taken, I must leave the point unsettled.

Reigate (Linnell); Scalby Beck, Yorkshire (W. Hey); Scarborough (R. Lawson).

(Sub-Gen. **Polystoma**, Stephens.)

The species that form this sub-genus are distinguished by their parallel form, less transverse thorax, and duller appearance; the thorax and elytra are, as a rule, thickly clothed with whitish pubescence; they are found on the sea-shore under decaying sea-weed and other refuse.

Hind body rather sparingly punctured; size larger.

Elytra strongly punctured; upper surface of hind body

rather shining **A. GRISEA**, Kr.

Elytra finely punctured; upper surface of hind body dull. **A. ALGARUM**, Fauv.

Hind body rather thickly punctured; size smaller **A. OBSCURELLA**, Grav.

A. grisea, Kr. (*nitidula*, Thoms., *obscura*, Thoms. nec Er.). Elongate, rather depressed, clothed with fine and thick whitish-yellow pubescence, of a somewhat leaden black colour, with the front parts rather dull, and the hind body shining; head coarsely punctured at sides, antennæ pitchy, with joints 2-3 equal in length, 5-10 gradually broader, the latter being strongly transverse; thorax not much broader than long,

finely, but distinctly and not closely punctured, usually presenting the appearance of a central longitudinal furrow, which is often due to the arrangement of the thick pubescence; elytra a little longer than thorax, strongly punctured; hind body rather long, with sides parallel until near apex, sparingly punctured, especially behind; legs pitchy, knees and tarsi lighter, posterior tarsi elongate. L. 3-4 mm.

Male with the dorsal plate of seventh segment of hind body almost truncate, ventral plate produced slightly in an obtuse angle.

Under decaying sea-weed, &c., on the sea-shore; widely distributed and not uncommon in many parts of England; Herne Bay, Southend, Whitstable, Broadstairs; Isle of Wight (Ryde, Ventnor, &c.); Harwich; Southsea; Falmouth; Hartlepool; Isle of Man; Northumberland district, rare (Bold); Scotland, common, Forth, Dee, Solway, and Clyde districts.

A. algarum, Fauv. (*grisea*, Thoms. nec Kr., *fuliginosa*, Rey). Resembles the preceding, but may easily be distinguished from it by its very much finer and closer punctuation, the more plainly marked posterior angles of the thorax, and the much duller general appearance; it is also, as a rule, rather larger and broader, but in this point it is very variable. L. $3\frac{1}{2}$ - $4\frac{1}{2}$ mm.

Found under the same circumstances as the preceding, but is much commoner in the south than in the north of England; Isle of Wight and South Coast, abundant; Sheerness, Whitstable, Chatham; Scarborough; New Brighton, Liverpool; Isle of Man; Northumberland district; Ireland, near Dublin; not recorded from Scotland.

A. obscurella, Er. Much smaller on the average than either of the two preceding, with which it has many points in common; it may also be distinguished from them by its coarser and thicker pubescence, and the closer punctuation of the hind body; the antennæ also are shorter; it is much duller and has the thorax and elytra much more closely punctured than *A. grisea*; in the latter points it resembles *A. algarum*, but the short and usually lighter-coloured antennæ and the sculpture of the hind body, as well as the small size, will serve to separate it; the male has the ventral plate and seventh segment of hind body produced in a much more distinct angle than in *A. algarum*. L. $3-3\frac{1}{3}$ mm.

In decaying sea-weed, &c., often found in company with the other two species; not uncommon and widely distributed; Sheerness, Hastings, Southsea, Margate, Southampton, Weymouth, Isle of Wight, &c.; Devonshire; Mablethorpe, Lincolnshire; Lancashire; Hartlepool; Northumberland district; Scotland, local, Tweed and Forth districts; Ireland, Portmarnock and Malahide near Dublin, and co. Down.

MICROGLOSSA, Kraatz. (*Haploglossa*, Kraatz, pars.)

This genus at present consists of about a dozen European, one Japanese, and two Chilian species, and one from Central America; the species are small and, as a rule, are found either associated with ants, or in the nests of birds or small quadrupeds, such as mice, squirrels, &c.; five species

are reputed as British, but *M. marginalis* appears at present to be rather doubtful.

- I. Sixth segment of hind body about as long as the preceding; punctuation of thorax indistinct *M. SUTURALIS*, Mann.
- II. Sixth segment of hind body evidently longer than the preceding; punctuation of thorax distinct, more or less coarse.
 - i. Sides of thorax red *M. MARGINALIS*, Gyll.
 - ii. Thorax unicolorous black or pitchy.
 - 1. Third joint of antennæ slightly shorter than second; size smaller and narrower; upper surface duller.
 - A. Punctuation of thorax and elytra distinctly coarser; hind body less closely punctured towards apex *M. PULLA*, Gyll.
 - B. Punctuation of thorax and elytra distinctly closer; hind body uniformly punctured *M. NIDICOLA*, Fair.
 - 2. Second and third joints of antennæ of equal length; size larger and broader; upper surface more shining. *M. GENTILIS*, Maerk.

M. suturalis, Mann. (*prætexta*, Er., *Crataræa suturalis*, Thoms.). Elongate, rather parallel, with rather long and not very thick pubescence; head and thorax pitch-black, elytra pitchy with the suture and sometimes apex more or less broadly reddish, hind body with apex and intersections of segments reddish-testaceous; head rather large, obsoletely punctured, antennæ entirely red, rather long, slightly thickened from the fourth joint to apex, third joint plainly shorter than second, 5–10 strongly transverse; thorax rather strongly transverse, only slightly narrowed in front, very finely punctured; elytra plainly longer than thorax and less closely punctured; hind body almost as broad at base as base of elytra, finely and not closely punctured; legs testaceous. L. $2\frac{1}{3}$ – $2\frac{2}{3}$ mm.

Male with ventral plate of seventh segment of hind body prolonged into an angle in the middle of its apical border.

In haystack refuse, &c.; common and widely distributed in the Midlands and the south of England; rarer further north; recorded by Mr. Bold as very rare in the Northumberland district; it has not hitherto occurred in Scotland; it appears to be rather rare in France.

M. marginalis, Gyll. (*Haploglossa rufipennis*, Kr. *). This species is distinguished from the three succeeding by the red colour of the sides of the thorax and of the apex of the segments of the hind body; it is more finely and closely punctured than either *M. pulla* or *M. gentilis*, and has the antennæ rather less thickened than the latter species; the elytra are bright red, except at the scutellum, and near the posterior angles; the antennæ are brownish with the base and apical joints reddish testaceous, and the legs are entirely red. L. 3 mm.

Taken by Mr. Crotch, I believe, near Cambridge; according to Kraatz it is associated in France with *Formica cunicularia*.

* There are one or two records of the occurrence of *H. rufipennis* in Britain; the insect, however, must be referred to *M. pulla*.

M. pulla, Gyll. (*Haploglossa pulla*, Kr.). Broader than *M. suturalis*, thickly and finely pubescent, dull black, with the elytra pitchy or reddish with the suture sometimes lighter, and the apex of the ventral segments reddish; head thickly and strongly punctured, antennæ shorter than head and thorax, rather strongly thickened from the fourth joint, brownish red, with the apical joint and base testaceous, fourth joint almost as broad as the following, 5–10 very strongly transverse; thorax broader than long, narrowed in front, about as broad at base as elytra, rather strongly punctured; elytra longer than thorax, strongly punctured, the punctuation resembling that of thorax; hind body about as broad at base as base of elytra, rather finely and thickly punctured towards base, less closely towards apex; legs reddish testaceous. L. $2\frac{3}{4}$ –3 mm.

Male with ventral plate of seventh segment of hind body produced in an angle in middle of apical border.

In holes of the sand-martin, &c.; occasionally by sweeping; also in carrion; as a rule scarce, but it is not uncommon in the London district; Sevenoaks, Esher, Weybridge, Forest Hill, Coombe Wood, Chingford, Darenth, Tonbridge, Tilgate Forest; The Holt, Farnham, from a fern-stack; Mickleham, in company with *Formica fuliginosa* (Power); Glanvilles Wotton; New Forest; Isle of Wight; Devonshire; Sherwood Forest; Studley, near Ripon; Scarborough; Northumberland district, rare Long Benton, and in Gibside Woods on flowers of heath; Scotland, very rare, Moray and Solway districts; according to Mulsant and Rey it is found in old trees with ants, and also in the nests of finches and quails, and with hedgehogs.

M. nidicola, Fairm. (sub-gen. *Haploglossa*, Kr.). This species comes very near to the preceding, but is abundantly distinct from it; the punctuation of the thorax, elytra, and hind body is plainly finer and closer, that of the latter being uniform or nearly so; the fourth joint of the antennæ is narrower; the colour is slightly duller and the pubescence rather finer and shorter; the elytra are almost always reddish, whereas in *M. pulla* they are usually pitchy or brownish; the antennæ, moreover, are slightly longer and less thickened, and have the penultimate joints less strongly transverse; these latter characters, however, are not very apparent; the sexual characters are the same. L. $2\frac{1}{2}$ –3 mm.

In holes of the sand-martin, and occasionally in flowers; not uncommon in the London district and the Midlands; St. Leonards; Manchester; Northumberland district, very rare, banks of the Irthing; Scotland rare, Tweed and Solway districts; Ireland, Killiney near Dublin.

M. gentilis, Maerk. (*Haploglossa gentilis*, Kraatz). The largest of our species; finely and moderately thickly pubescent, shining black, with the elytra more or less red and the ventral segments of hind body reddish at apex; head large, strongly and diffusely punctured; antennæ a little shorter than head and thorax together, brownish with the last and two or three basal joints testaceous, thickened from the apex of the third joint, joints 4–10 strongly transverse; thorax broader than long as broad at base as elytra, very shining, punctuation distinct and not very close; elytra longer than thorax, moderately punctured, sometimes

pitchy with apex reddish, sometimes entirely reddish with scutellum and sides darker; hind body finely and thickly punctured, a little more diffusely behind; legs ferruginous or reddish testaceous. L. $3\frac{1}{2}$ mm.

Male with the ventral plate of seventh segment of hind body sinuate at the sides and produced in an angle in middle of its apical border.

In the runs of *Formica fuliginosa*; rare, but probably often overlooked, as it doubles itself up and will lie for a quarter of an hour without stirring; Mickleham; Birdbrook, Essex; Reigate (sandpits); Weston-super-Mare (Crotch): Dr. Power has taken it in considerable numbers by carefully blowing away the sand, and watching the ant-runs: the species is rather widely distributed in France.

OXYPODA, Mannerheim.

The species belonging to this genus are chiefly characterized by the very long first joint of the posterior tarsi; they are often narrowed both in front and behind, presenting a fusiform or, as it has sometimes been called, a "pisciform" or fish-like appearance; the thorax is always broad at the base; the hind body is almost always strongly narrowed behind, and has the three first segments usually more or less plainly longitudinally impressed at base; about one hundred and sixty species have been described; these are chiefly found in the European and adjacent regions; one or two, however, have been described from North America, eight from Central America, one from Brazil, and several from Chili.

The genus is one of the most difficult of all the genera of Coleoptera, and the species as a whole are much harder to distinguish than those belonging to the genus *Homalota*. Thomson and Mulsant and Rey divide the genus up into six or seven sub-genera, but for actual working these appear to be very confusing: the differences between some of the species are so very slight and so entirely comparative that it is almost impossible to tabulate them satisfactorily; the comparative thickening of the antennæ, the relative length of thorax and elytra, and the attenuated or subparallel hind body, the characters on which the chief divisions and sub-genera are founded, are in some cases exceedingly unsatisfactory, and can only be really employed with certainty in the case of live or very well set specimens; the sections, therefore, that are adopted below must be regarded as provisional, and the different species must be worked from the detailed descriptions, which have been made to a certain extent comparative.

- I. Hind body gradually and usually strongly narrowed behind; body fusiform, narrowed in front and behind; third joint of antennæ a little longer than, or about as long as, second; elytra longer than thorax; size larger ($3\frac{3}{4}$ – $5\frac{1}{2}$ mm.).

Section I. (Sub-Gen. *Oxypoda*, i. sp.)

- II. Hind body more or less plainly narrowed to apex; body more or less distinctly fusiform; third joint of antennæ shorter than second; elytra not shorter than thorax; size smaller.

1. Elytra $1\frac{1}{2}$ times as long as thorax; length $3\frac{1}{2}$ mm.

Section II. (Sub-Gen. *Mycetodrepa*, Thoms.).

2. Elytra equal to or only slightly longer than thorax ; length 2-3 mm.

Section III. (Sub-Gen. **Bæoglæna**, Thoms., and **Podoxya**, Muls. et Rey.)

- III. Hind body more or less distinctly parallel-sided, body not fusiform ; elytra not shorter than thorax ; length 2-3 mm.

1. Antennæ very long, reaching apex of elytra, gradually and plainly thickened.

Section IV. (Sub-Gen. **Disochara**, Thoms.)

2. Antennæ rather long, longer than head and thorax, rather uniformly thickened from third joint, which is considerably widened at apex.

Section V. (Sub-Gen. **Disochara**, pars. ?)

3. Antennæ as a rule rather short and plainly thickened towards apex ; elytra equal to or a very little longer than thorax.

Section VI. (Sub-Gen. **Demosoma**, Thoms.)

- IV. Elytra distinctly shorter than thorax ; length $1\frac{3}{4}$ - $2\frac{1}{2}$ mm.

Section VII. (Sub-Gen. **Bessopora**, Thoms.)

Section I. (*Oxyptoda*, i. sp.)

This section contains five species (*O. spectabilis*, *lividipennis*, *vittata*, *longipes*, and *opaca*), which may easily be distinguished from all the others belonging to the genus by their larger size ; two of these species appear to be usually found in company with *Formica fuliginosa* : of these *O. vittata* is rather common, whereas *O. longipes* is represented as British by a single specimen ; its habitat however, on the Continent, is in ants' nests, and it may, and probably will, be found again in Britain ; the other species occur in fungi, under dead leaves, in haystack refuse, &c.

O. spectabilis, Maerk. Moderately shining, finely and thickly pubescent, pitchy black with the elytra and the apical margin of the segments of the hind body above and below of a dull reddish or testaceous colour ; head finely and thickly punctured, antennæ rather long, testaceous, sometimes a little fuscous towards apex, third joint hardly longer than second, 4-10 longer than broad, gradually a little shorter and thicker, eleventh as long as the two preceding ; thorax broader than long with sides rounded and narrowed in front, as broad at base as base of elytra, rather finely and thickly punctured ; elytra plainly longer than thorax, strongly sinuate at apex near postero-external angles, very finely, thickly, and somewhat rugosely punctured, sometimes entirely of a reddish colour, sometimes darker round scutellum and near posterior angles (this var. appears to be the real *O. spectabilis* of Maerkel) ; hind body narrowed and strongly setose behind, very finely and thickly punctured or shagreened ; legs slender, testaceous, posterior tarsi elongate, as long as the tibiæ, with the first joint however shorter than the three succeeding together. L. $5-5\frac{1}{2}$ mm.

Male with the ventral plate of seventh abdominal segment produced in the middle in a blunt and wide angle.

In dead leaves, fungi, carrion, &c.; occasionally by sweeping; New Brompton (Surrey), Highgate, Mickleham; North Devon, Barnstaple; Sherwood Forest; Studley Royal, Ripon; Hartlepool; Scalby (Yorkshire); Northumberland district, very rare, in fungi, Gosforth Woods and Wooler, October; Scotland rare, Forth, Clyde, and Solway districts (Cheviot Hills, Eccles, Balmuto, &c.).

This species is larger than any of the other British members of the genus, and is different in colour: from all the others except *O. longipes* it differs in having the posterior tarsi more elongate with the first joint shorter than the three following united: from *O. longipes* its much larger and broader size and longer penultimate joints of the antennæ will serve to separate it.

O. longipes, Muls. et Rey. Smaller and narrower than the preceding, pitchy black, with the elytra reddish brown (the region round scutellum and the postero-external angles being usually darker); antennæ moderate with the second and third joints about equal, 4–6 gradually a little less longer than broad, 7–10 about as long as broad, eleventh very long; thorax much as in the preceding species; elytra longer than thorax, strongly sinuate near postero-external angles, finely, thickly, and rugosely punctured; hind body strongly narrowed and setose behind, very finely shagreened; legs testaceous, posterior tarsi elongate with first joint shorter than the three following united. L. $3\frac{1}{2}$ – $3\frac{3}{4}$ mm.

Male with the dorsal plate of seventh segment of hind body produced in rather a strong angle in the middle of posterior margin.

Scotland, Forth district; a single specimen taken at Aberlady: the species is rare in France near Lyons and Beaujolais in trunks of old trees in company with *Formica fuliginosa*.

O. lividipennis, Mann. (*luteipennis*, Er.) Of a dull pitchy black or brownish colour, very finely and thickly pubescent, with the thorax sometimes lighter than head, and the elytra except the region around scutellum and the postero-external angles testaceous; the apex of the segments of the hind body is also lighter; antennæ rather long, fuscous with basal joint testaceous, and one or two following reddish brown, with joints 4–10 gradually a little thicker and shorter but none of them transverse, the last joint long sharply narrowed at apex; thorax transverse, narrowed in front; sides sometimes lighter than disc; elytra plainly longer than thorax, with base strongly sinuate near posterior angles, very closely and finely and rugosely punctured; hind body plainly and gradually narrowed to apex, very finely shagreened; legs rather long, testaceous, posterior tarsi with the first joint elongate, equal to the three following united: the colour is somewhat variable, and several species were founded by Stephens on its differences. L. 4 mm.

Male with the ventral plate of seventh segment of hind body produced in middle of apical margin.

In haystack refuse, carrion, &c., and often by sweeping; generally distributed and common as far north as the Forth district of Scotland.

O. vittata, Maerk. This species is very closely related to the preceding, of which it may perhaps be a race that has been somewhat modified by habitat; it is a little smaller and narrower; the colour of the elytra is variable, but as a rule the dark colour is more prevalent than in the preceding species; the intermediate and penultimate joints of the antennæ are shorter, and the posterior tarsi are slightly longer. L. $3\frac{1}{2}$ mm.

In nests of *Formica fuliginosa*; common in the London district; not uncommon also in the south of England and the Midlands, but rarer further north; Scotland, very rare, Dee and Solway districts. To this record Dr. Sharp ("Scottish Naturalist," ii. 12, p. 189) appends the following note: "This species is not uncommon as a guest of *F. fuliginosa*, a species which I believe does not occur in Scotland. I have taken *vittata* at Thornhill and Braemar, and certainly not with the ant in question."

O. opaca, Grav. This species is very much like the two preceding, but may, as a rule, be easily distinguished by the darker and more uniform colour of the elytra, which are also evidently shorter and more transverse; the general form is shorter and more convex, and the pubescence is darker and rather closer; the first joint of the posterior tarsi is distinctly longer than the three following together, whereas in the two preceding species it is at most only equal to them; the male has the ventral plate of the seventh segment of hind body prolonged in a less evident angle. L. $3\frac{1}{3}$ – $3\frac{2}{3}$ mm.

In haystack refuse and under vegetable detritus generally; also in moss, old faggots fungi, &c.; common and widely distributed throughout the kingdom.

Section II. (Sub-Gen. **Mycetodrepa**, Thoms.)

This section contains one species which is very common in decaying fungi, especially in autumn; it is easily distinguished by its colour (in which it resembles one or two species of *Bolitochara*, with which it is sometimes found in company), and by having the elytra half as long again as thorax.

O. alternans, Grav. Elongate, finely and thickly pubescent, and very finely punctured, with the head and a broad band before apex of hind body dark brown or black; the elytra also have the scutellary region and the postero-external angles darkened; antennæ rather strongly thickened, fuscous, with base lighter, third joint a little shorter than second, 6–10 strongly transverse; thorax broader than long, with base slightly narrower than base of elytra; elytra much longer than thorax; hind body narrowed behind, finely shagreened; legs testaceous, posterior tarsi elongate, with the first joint about equal to the three following united. L. 3 – $3\frac{1}{2}$ mm.

Male with ventral plate of seventh segment of hind body prolonged into a distinct angle.

Common and generally distributed.

Section III. (Sub-Gen. **Bæoglæna**, Thoms., and **Podoxya**,
Muls. et Rey.)

This section, as here constituted, contains nine species, *O. exoleta*, *verecunda*, *edinensis*, *lentula*, *umbrata*, *pectita*, *nigrina*, *exigua*, and *riparia*; they are all small species, and, with one or two exceptions, are very hard to distinguish from one another; one or two of them are so extremely closely related that by some authors they are not considered distinct; generally speaking they are distinguished from the succeeding sections by having the hind body more or less narrowed to apex, but it must be admitted that in dry specimens this is a character that is often a misleading one, and one that must be used with great caution: Mulsant and Rey separate off the species belonging to their sub-genus *Podoxya* on the ground that they have the antennæ less thickened towards apex than those belonging to *Bæoglæna* (*exoleta* and its allies), and that the penultimate joint of the maxillary palpi is less elongate: with regard to the former character, although it is plain in some species, yet others appear to be intermediate, and although *O. exoleta* is remarkable for the length of the penultimate joint of the maxillary palpi, yet there are species closely related to it in which it is not remarkable: it is evidently impossible to tabulate the species satisfactorily, and in fact several of them require careful comparison with authentic types before they can possibly be named with any authority; any student, however, who desires tables is referred to Muls. et Rey, Brévipennes, Al., 1874, pp. 284 (*Bæoglæna*) and 298 (*Podoxya*).

O. exoleta, Er. (*Oxypoda* (*Bæoglæna*) *exoleta*, Muls. et Rey, *subflava*, Heer., *riparia*, Thoms.). Of a rather dull testaceous colour, with the head and a broad band before apex of hind body dark brown or blackish, very finely and thickly pubescent; antennæ rather short moderately thickened towards apex, ferruginous with base lighter, third joint shorter than second, 6-10 plainly transverse; maxillary palpi with penultimate joint elongate; thorax broader than long, not strongly narrowed in front, posterior angles obtuse but not rounded, thickly and finely punctured; elytra a little longer than thorax, testaceous with the scutellary region more or less infuscate, finely, thickly, and rugosely punctured; hind body long, strongly setose at apex, finely shagreened, sixth segment much longer than the preceding; legs light testaceous, posterior tarsi with the first joint equal to the three following united. L. $2\frac{2}{5}$ mm.

Male with ventral plate of seventh segment of hind body rounded, and not produced in an angle.

Sandpits, &c.; occasionally underneath rejectamenta on and near the coast; rare; Shirley, Surrey; Gravesend; Sheerness; Chobham; Tonbridge; Weymouth; Smallheath, near Birmingham, under bones; South Shields; Scotland, very rare, Forth district. According to Mulsant and Rey this species occurs under bark, among old faggots, and under dead leaves in spring and autumn in various parts of France.

O. verecunda, Sharp. This species is exceedingly closely allied to the preceding, but appears to be a little shorter and broader in proportion, and to be distinguished by not having the penultimate joint of the maxillary palpi elongate; the antennæ are a little more thickened towards apex, and the elytra are very slightly shorter in proportion to the thorax; the hind body is a little less narrowed towards apex. L. $2\frac{1}{2}$ mm.

Very rare; London district, Bishops Wood; Whittlesea Mere. Scotland very rare, Dee district.

I feel somewhat doubtful as to the differences between this species and *O. exoleta*, and am rather inclined to believe that they are identical.

O. edinensis, Sharp. Of a darker colour than the two preceding, but in many points closely connected with them; head pitchy, or pitchy black, more than half as broad as the elytra, closely and finely but distinctly punctured, rather shining; palpi yellowish; antennæ pitchy, sometimes a little lighter at base, only slightly thickened towards apex, third joint slightly shorter than second, fourth a little smaller than fifth, 6–10 slightly transverse, eleventh scarcely so long as the two preceding together; thorax reddish brown, as broad as, or almost broader than, elytra, rounded at the sides, one-half broader than long, finely and closely punctured, but rather shining; elytra brownish or reddish brown, rather shining, closely and finely punctured; hind body pitchy black with apex lighter, not strongly narrowed towards apex, very finely punctured, more shining than in some of the allied species; legs light testaceous. L. $2\frac{2}{3}$ mm.

Scotland rare, Lowlands, Highlands, and alpine; Forth and Dee districts (Edinburgh, Aviemore, &c.).

This species is about the size of *O. lentula*, but is more shining, and lighter in colour, with shorter elytra, and narrower head.

O. lentula (*Oxyroda (Podoxya) lentula*, Muls. et Rey). Dull black with the elytra brownish, with very fine and thick pubescence and punctuation; head broad, antennæ about as long as head and thorax together, gradually and slightly thickened, entirely pitchy or pitchy red, third joint a little shorter than second, 5–10 slightly transverse, eleventh elongate compressed in middle and appearing two-jointed; thorax broader than long, almost broader than elytra, with an obsolete central furrow; elytra a little longer than thorax, varying from dull black brown to reddish brown, very finely, thickly, and somewhat rugosely punctured; hind body narrowed and strongly setose behind, very finely shagreened; legs pitchy testaceous, posterior tarsi with the first joint about as long as the three following together. L. $2\frac{1}{2}$ mm.

Marshy places, in flood refuse, moss, &c.; locally abundant; Forest Hill, Notting Hill, Shooter's Hill, Lee, Tonbridge, Wimbledon, Eltham, Darenth; Northumberland and Durham district; Scotland, local, Lowlands, in marshes, Dee, Solway, and Clyde districts; it has probably been overlooked in the Midland and other districts: in facies it resembles a small *Homalota*.

O. umbrata, Grav., Gyll., Thoms. (*Oxyptoda* (*Podoxya*) *umbrata*, Muls. et Rey, *cuniculina*, Er. pars.). Rather strongly fusiform, very finely and thickly pubescent, of a dull pitchy black colour, with the elytra, apex of hind body, and the hind margin of its segments more or less plainly reddish brown; head finely but distinctly punctured, antennæ pitchy with first joint sometimes lighter, third joint a little shorter than second, 6–10 strongly transverse, eleventh broad, longer than the two preceding, and constricted so that it appears almost two-jointed; thorax broader than long as broad as elytra, more finely punctured than head; elytra plainly longer than thorax, strongly sinuate near postero-external angles, with fine somewhat rugose punctuation, which is a little closer, but not stronger than that of thorax; hind body rather strongly narrowed and setose towards apex, very finely shagreened; legs testaceous, posterior tarsi elongate, with first joint rather longer than the three following together. L. 3 mm.

In haystack refuse, dead leaves, old faggots, &c.; generally distributed and common.

This species much resembles *O. opaca*, but is distinguished by its smaller size, and shorter antennæ, of which the third joint is plainly shorter than the second. *O. umbrata*, Er., is a different species = *O. humidula*, Kraatz.

O. pectita, Sharp. (*cuniculina*, Er. pars.). This species is closely allied to the preceding, but is distinctly narrower and more parallel, with the thorax especially narrower and always having a more or less distinct longitudinal channel; the hind body is not so much pointed at apex, and the thorax and elytra are not so finely punctured; the antennæ also are plainly longer, with the penultimate joints less transverse; owing to the narrower form the elytra appear somewhat longer in proportion to the thorax. L. 3 mm.

Haystack refuse, &c.; not common, but probably overlooked; Eltham, Shirley, Forest Hill, Tonbridge, Hammersmith; Abbey Wood; Littlehampton; Cambridge. Scotland, rare, Lowlands, Forth and Solway districts.

O. nigrina, Wat. (*sericea*, Heer. *teste* Fauvel, *nigrescens*, Muls. et Rey). Considerably smaller than *O. umbrata*, which it resembles in form, and usually of an entirely dull black colour; the elytra, however, are sometimes obscurely brownish; the antennæ and posterior tarsi are shorter than in either of the two preceding species; it bears a superficial resemblance to *O. lentula*, but may at once be distinguished by its longer elytra (which are plainly longer than thorax) and shorter and more distinctly thickened antennæ: Mulsant and Rey refer it to their *O. nigrescens*, but as they say that this species comes nearest to *O. hæmorrhœa*, it would appear that they can hardly be right in so doing. L. $2\frac{1}{4}$ mm.

In moss, at roots of grass in marshy places, &c., occasionally in sandpits and hot-

beds; local but apparently not uncommon; London district, very generally distributed; Tonbridge; The Holt, Farnham; Needwood Forest; Knowle, near Birmingham; Lincoln; Liverpool; Manchester; Scotland, local, Solway, Forth, Tay, and Dee districts.

O. exigua, Er. (*Oxypoda* (*Podoxya*) *exigua*, Muls. et Rey). A small and obscure species, black, rather shining, with the elytra and apex of hind-body brownish; head rather large, finely but distinctly punctured; antennæ yellowish, or brownish with the first joint at least testaceous, third joint a little shorter than second, 6–10 transverse, eleventh rather broad, as long as the two preceding together, acuminate at apex; thorax broader than long, as broad behind as elytra, finely and thickly punctured; elytra slightly longer than thorax, plainly transverse, rather distinctly and somewhat rugosely punctured; hind body plainly narrowed and setose towards apex, thickly and plainly punctured towards base, sparingly punctured and smooth and shining behind; legs testaceous, femora more or less pitchy, posterior tarsi with the first joint equal to the two following together. L. $1\frac{1}{2}$ mm.

Male with ventral plate of seventh segment of hind body a little prolonged and obtusely angled in middle of apical margin.

The transverse elytra, small size, and the sculpture of the hind body will at once separate this species from all the preceding.

In sandpits, &c., in moss and under vegetable refuse; rare; Shirley; Wimbledon; Deal. Scotland, Tay district, Bannoch.

O. mutata, Sharp (*riparia*, Fairm. nec Thoms., *rugulosa*, Kr. ?, *Oxypoda* (*Podoxya*) *riparia*, Muls. et Rey). This is one of the most distinct of all our species, and may be easily known by its very strong punctuation (almost "engine-turned," as Mr. Rye calls it, Ent. Ann. 1872, p. 52), and the small more or less distinct projection on the basal margin of thorax; the colour is ferruginous with the head and intermediate segments of hind body darker; the antennæ are distinctly thickened, testaceous, darker towards apex, or obscurely ferruginous with base lighter, third joint plainly shorter than second, 6–10 strongly transverse; the elytra are a little longer than the thorax, and are more strongly and rugosely sculptured; the hind body is distinctly and almost uniformly punctured; the punctuation however of the apical segment is slightly finer; legs testaceous, posterior tarsi with the first joint equal to the two following together. L. 2–2 $\frac{1}{4}$ mm.

Sandpits and banks of streams, under dead leaves, &c.; early summer; very rare, Shirley near Croydon; Coombe Wood; Colney Hatch.

The species is somewhat of the form of *O. exoleta*, but differs in its smaller size, coarser punctuation, and somewhat differently shaped antennæ; in the single specimen I have seen the hind body is almost parallel-sided, but in fresh specimens it is said to be plainly narrowed behind.

Section IV. (Sub-Gen. **Disochara**, Thoms.)

This section contains one species, the very distinct *O. longiuscula*, Er., which may at once be separated by its very long antennæ, which reach the apex of the elytra, and are strongly thickened towards their extremity: it occurs in marshy places, at roots of grass, &c., and is often abundant in flood refuse.

O. longiuscula, Er. (*elongata*, Aubé, *procerula*, Mann.). Rather narrow, very finely and thickly pubescent, dull black or pitchy brown; head distinctly punctured, antennæ long, entirely ferruginous, or pitchy with base lighter, second and third joints nearly equal, 4–10 gradually thicker, fourth smaller than fifth, tenth rather longer than ninth; none of the joints, however, are really transverse; thorax broader than long as broad behind as elytra, very finely punctured; elytra almost square, longer than thorax, finely, thickly, and somewhat rugosely punctured; hind body long, with sides parallel or slightly rounded to fifth segment, and thence gradually and slightly narrowed towards apex, with the three first segments strongly and evenly impressed at base, very finely punctured and pubescent; legs testaceous, posterior tarsi nearly as long as the tibiæ with the first joint very long, plainly longer than the three following together; the colour is somewhat variable, the thorax and elytra being often of a reddish brown colour. L. $3-3\frac{1}{2}$ mm.

Male with the ventral plate of seventh segment of hind body produced into an obtuse angle in middle of apical margin, and with the last joint of the antennæ distinctly longer than the two preceding: in the female the last joint is plainly shorter than the two preceding.

Common and generally distributed in England, and probably in Ireland. Scotland, common, Lowlands, in swamps, Tweed, Forth, and Solway districts; in France it appears to be somewhat rare, and to prefer northern and mountainous regions.

Section V. (Sub-Gen. **Disochara**, pars. ?)

This section contains one species, *O. rupicola*, Rye, which is considered in the catalogue Heyden-Reitter-Weise as synonymous with *O. tirolensis*, Gredl., and is classed with *longiuscula*, Er., *lugubris*, Kraatz, and other species, under the sub-genus *Disochara*, Thoms.: Mulsant and Rey consider *O. lugubris*, which evidently bears a close relation to *O. rupicola*, as belonging to their sub-genus *Podoxya*, but as intermediate between Section I. (as above given) and the other sections; as, however, from the descriptions it appears evident that *O. lugubris* with its parallel form cannot properly belong to *Podoxya* as strictly defined, I have preferred to place *O. rupicola* in a section by itself; it might perhaps be classed with *O. longiuscula*, but its antennæ are much shorter, and have the third joint shorter in proportion to the second joint.

O. rupicola, Rye. Of the form of *O. longiuscula*, Er., but much

smaller, with considerably shorter antennæ; of a deep sooty black colour, with the elytra sometimes obscurely lighter and the apex of hind body more or less plainly testaceous; pubescence and punctuation close and fine; head moderately large; antennæ pitchy, rather uniformly thickened, third joint plainly shorter than second, 4–7 moderately, 8–10 more plainly transverse, the joints being shorter and less conical than in *O. longiuscula*, eleventh joint about as long as the two preceding, constricted and so appearing almost two-jointed; thorax about as broad as elytra, not much broader than long; elytra somewhat variable in length, but always longer than thorax, sometimes very plainly so; hind body narrowed a little before apex, with the front segments distinctly depressed at base; legs pitchy testaceous, posterior tarsi with the first joint about equal to or almost longer than the three succeeding together. L. $2\frac{1}{2}$ – $2\frac{3}{4}$ mm.

Male with the ventral plate of seventh segment of hind body prolonged obtusely.

This species is allied to *O. lentula*, but is of a rather deeper black colour, with longer antennæ, of which the joints are not quite so transverse; the thorax and elytra are longer, and the posterior tarsi longer and thinner.

Rare; in moss and under stones on mountains and high hills; Snowdon; Cheviots; Scotland, Tay, Dee, and Clyde districts; Ireland, co. Down, summit of Slieve Donard: Mr. Rye first found the species under stones on the top of Grayvel, Rannoch.

Section VI. (Sub-Gen. **Demosoma**, Thoms.)

There are five species belonging to this section, *O. formiceticola*, *recondita*, *hæmorrhœa*, *amœna*, and *nigrofusca*; they are distinguished by their almost parallel-sided hind body, which is not so strongly setose at apex, and by their less fusiform shape; the elytra are equal to or scarcely longer than thorax: the species are, with the exception perhaps of *O. hæmorrhœa*, more broadly and stoutly built than those in the third section, and are usually more brightly coloured; one or two of them inhabit the nests of *Formica rufa*: the others occur in various situations.

O. formiceticola, Maerk. Elongate, rather broad and parallel-sided, very finely and thickly pubescent, of a lighter or darker pitchy brown or pitchy red colour with the head and base of central segments of hind body darker; head rather shining, antennæ hardly as long as head and thorax together, gradually and plainly thickened, entirely testaceous, or sometimes a little darker towards apex, third joint a little shorter than second, 4–10 gradually a little broader, 6–10 strongly transverse; thorax strongly transverse, narrowed in front, as broad at base as elytra, finely and thickly punctured, with more or less obscure central furrow; elytra transverse, equal in length to the thorax at the sides, but apparently shorter in the centre, thickly and somewhat rugosely punctured; hind body with the apex of the front segments

and the whole or nearly the whole of the last two testaceous, very finely punctured, the punctuation being a little less close on the apical segments; legs clear reddish testaceous, posterior tarsi with the first joint equal to the three following together. L. $2\frac{2}{3}$ –3 mm.

Male with the ventral plate of seventh segment of hind body rounded.

In nests of *Formica rufa*; somewhat local, but not uncommon; London district, generally distributed; Hastings; Tamworth; Bewdley Forest; Buddon Wood, Leicestershire; Scarborough; Scotland, local, Tay, Dee, and Moray districts.

O. recondita, Kr. (*lucens*, W. C.). Rather broad, shining, thickly punctured and pubescent, of a bright testaceous or reddish brown colour with the head and central portion of hind body darker; antennæ entirely testaceous, rather stout, third joint plainly shorter than second, 5–10 gradually broader, the latter strongly transverse, eleventh broad but rather short; thorax broader than long, as broad as elytra, rather convex, without any central impression or basal furrow; elytra about as long as thorax, finely, but plainly and somewhat rugosely, punctured; hind body parallel-sided, with the apical segments somewhat less closely punctured than the basal segments; legs testaceous. L. 3 mm.

In nests of *Formica rufa*, and, I believe, in other habitats; apparently very rare; Highgate; Ashted; Loughton (Essex); Buddon Wood, Leicestershire; Scotland, Clyde district (Paisley).

This species somewhat resembles *O. exoleta* in general appearance, but differs in its broader and more parallel form; from *O. pallidula* and *soror* it may be separated by its larger size and longer elytra: it differs from *O. formiceticola* in being of a much brighter testaceous colour, in having no trace of central furrow on thorax, and in the less closely punctured apex of hind body.

O. hæmorrhœa, Mann. (*promiscua*, Er., *myrmecophila*, Maerk.). Narrower in proportion than the other species of the group, finely and thickly punctured and pubescent, rather shining, pitch-black with the apex of hind body testaceous and the elytra sometimes obscurely brownish; antennæ reddish with base lighter, short and rather stout, third joint shorter than second, 5–10 strongly transverse, eleventh short, evidently not as long as the two preceding; thorax transverse, about as broad at base as elytra; elytra scarcely longer than thorax, finely, thickly, and somewhat rugosely punctured; hind body parallel-sided, or with sides slightly rounded, very finely punctured, the punctuation being sometimes a little less dense towards apex; legs testaceous or reddish testaceous, posterior tarsi with the first joint as long as the three following united. L. $2-2\frac{1}{4}$ mm.

Male with ventral plate of seventh segment of hind body rounded.

In moss, haystack refuse, &c.; also found frequently in nests of *Formica rufa*; generally distributed and common in the south, and the London, Fen, and Midland

districts, but apparently rarer further north; not recorded from the Northumberland district; Scotland, local, Forth, Tay, and Moray districts.

This species is easily distinguished by its parallel form, shining appearance, and short, yellowish antennæ; it somewhat resembles *Homalota analis* in shape, but besides other things, the form of the head will at once separate it.

O. amœna, Fairm. (*flavicornis*, Kr.). This species closely resembles the preceding, but it is as a rule a little less black and shining, and rather broader; the antennæ are slightly shorter and of a lighter colour; the elytra are a little longer and rather more finely punctured; the hind body is not quite so parallel-sided, and is more uniformly punctured; the pubescence is finer and closer; the elytra are said to be always reddish or castaneous, but in many of the Scotch examples they are quite dark. L. $2\frac{1}{4}$ mm.

Apparently very rare, but most probably overlooked, as it is extremely hard to distinguish it from *O. hæmorrhœa*, except by very close comparison; Eltham, Kent. Scotland, rare, Forth district (Braid Hills, &c.).

A. Waterhousei, Rye (*nigrofusca*, Wat. nec Steph.). This species appears to be generally considered by continental authorities to be synonymous with the preceding; it is, however, distinctly smaller, and much duller, and differs in the sculpture of the elytra, which is as fine or almost finer than in *O. amœna*, but is slightly more distinct; the elytra also are more strongly sinuate near the postero-external angles; the only specimens I have seen are of an entirely dull reddish brown colour, with the head and a greater or less part of the central portion of hind body darker: the species appears to be more distinct than several of those which are generally received, but the differences are hard to express in words. L. vix 2 mm.

Under large stones, lying among tidal refuse; also in haystack refuse, &c.; Sheerness (J. J. Walker); Hampstead (Waterhouse); Sydenham (Gorham); West Ham.

Section VII. (Sub-Gen. **Bessopora**, Thoms.)

This section contains five species, *O. soror*, *pallidula*, *brachyptera*, *tarda*, and *misella*; they are well marked by having the elytra plainly shorter than the thorax; the hind body is subparallel; the antennæ are short with the exception of those of *O. soror*, which species, except as regards the length of the elytra, bears a stronger relation to one or two of the other sections: this latter species and *O. pallidula* are of a lighter or darker testaceous colour; the other three species are more or less pitchy or dark ferruginous.

O. soror, Thoms. (*flava*, Kr. ?). Entirely testaceous with the hind body darker before apex, finely punctured, and pubescent; head and antennæ testaceous, the former with the eyes alone black, antennæ rather long, thickened towards apex, third joint plainly shorter than second,

5–10 transverse, of about equal thickness, eleventh rather long, ovate, but acuminate at apex; thorax as broad as elytra, not much narrowed in front, rather convex; elytra plainly shorter than thorax, very transverse; hind body long, very finely and closely punctured, with the fifth segment fuscous; legs pale testaceous. L. $2\frac{1}{4}$ mm.

Very rare; Dean Forest (W. G. Blatch); Scotland, Tay district, Rannoch, under stones summit of Grayvel (Rye and Morris Young). Mr. Rye remarks that it is very pale when alive.

The short elytra will distinguish this insect from all our other testaceous species except *O. pallidula*, from which it may be easily separated by its much longer antennæ.

O. annularis, Sahlb. (*cingulata*, Mann., *helvola*, Thoms. et Er., *rufula*, Heer., v. *pallidula*, Sahlb.). Rather narrow and linear, very finely and thickly punctured and pubescent, of a dull testaceous or reddish testaceous colour with the fifth segment of hind body more or less darkened; antennæ short, plainly thickened, third joint distinctly shorter than second, 6–10 very strongly transverse; thorax nearly as long as broad not much narrowed in front, almost broader at base than base of elytra; elytra very transverse, distinctly shorter than thorax, as finely punctured as thorax; hind body long, parallel-sided until near apex, very finely and uniformly punctured; legs testaceous. L. 2 mm.

Sexual characters indistinct.

In moss, dead leaves, &c.; occasionally in sandpits; rather local, but not uncommon; Shurley, Cobham Park, Hampstead, Highgate, Bishops Wood, Esher; in *Cossus*-infected trees near Addington, Croydon; Tonbridge: Nettlecomb, Somerset; Buddon Wood, Leicestershire; Tamworth; Scarborough; Northumberland district; Scotland, local, Lowlands and Highlands, Solway, Forth, Tay, and Dee districts.

The var. *pallidula* is of a lighter colour and "almost entirely testaceous" according to Mulsant and Rey: according, however, to Sahlberg, his *pallidula* resembles *annularis* in colour, but differs in its shorter and broader thorax.

O. brachyptera, Steph. nec Kraatz (*ferruginea*, Er., *forticornis*, Fairm. (*verisim.*)); re-described by Sharp, Ent. Soc. Trans. 1871, p. 191. Rather narrow, and parallel, but with the extremity of hind body distinctly narrowed; antennæ and legs yellowish; head, thorax, and elytra of an obscure reddish colour; hind body reddish at base and apex, black in the middle; head rather broad, antennæ a little thickened towards apex, third joint much shorter than second, third triangular, narrowed at base, fourth slightly transverse, 5–10 strongly transverse, eleventh long and stout, quite as long as the two preceding together; thorax much broader than long, not much rounded at sides, but a little rounded and narrowed in front, thickly and finely punctured; elytra shorter and almost narrower than thorax, finely punctured, but rather more coarsely than thorax; hind body densely and finely punctured, setæ at extremity small and indistinct; pubescence of thorax and elytra short and fine, of hind body less fine. L. 2 mm.

In sandpits, &c.; not uncommon; Shirley, Wimbledon, Dulwich, Esher, Mickleham, Woking, Southend; Brighton; St. Leonards; Isle of Portland; Knowle, near Birmingham; less common further north; Northumberland district, rather rare, Tynemouth, on the Irthing, &c.; Scotland, rare, Solway district only.

O. tarda, Sharp. This species is very closely allied to the preceding, but is rather larger and darker coloured; the antennæ are proportionately a little shorter; the elytra are slightly longer, and the base of the hind body is not paler than the middle; in all other respects it is similar to, and hardly appears to be more than a variety of, *O. brachyptera*. L. $2\frac{1}{4}$ mm.

Rare; salt marshes near Dumfries, Scotland.

O. misella, Kr. A small and rather broad species, of a darker colour than either of the two preceding, thorax, elytra, and base and apex of hind body very dark reddish brown, head and rest of hind body black or almost black; head large, nearly as broad as thorax, antennæ very short, fuscous (except in somewhat immature specimens) with base lighter, third joint shorter than second, 6–10 strongly transverse; elytra shorter and almost narrower than thorax; hind body parallel-sided until near apex, with very fine punctuation which is slightly less dense on the apical segments; legs clear testaceous. L. $1\frac{1}{2}$ mm.

In sandpits, &c.; rare; Shirley, Wickham, Wimbledon.

In the shortness of its antennæ this species resembles *O. annularis*, but it cannot be confounded with that species by reason of its smaller size and much darker colour; from *O. brachyptera* it is distinguished by its shorter antennæ and elytra, and less distinct punctuation, as well as by its smaller size.

THIASOPHILA, Kraatz.

This genus contains about five or six species which are found in Europe, and one from Japan; they occur in company with ants: our two species have a somewhat wide distribution on the Continent; they are rather short broad insects of a dull reddish-pitchy colour, and have the front parts very closely and rugosely punctured.

Thorax at base not broader than elytra; antennæ moderately thickened	T. ANGULATA, Er.
Thorax at base broader than elytra; antennæ strongly thickened	T. INQUILINA, Maerk.

T. angulata, Er. Rather broad, dull reddish-brown, with the head, and hind body before apex, darker, apex itself reddish testaceous; antennæ dark ferruginous with base and apical joint lighter, third joint longer than second, 5–10 plainly transverse; thorax almost twice as broad as long with a more or less distinct impression before scutellum, thickly and somewhat rugosely punctured; elytra transverse, about as long as thorax, and a little more closely punctured; hind body gradually

narrowed from apex of third segment, more closely punctured in front, more sparingly behind; legs reddish testaceous. L. 3 mm.

Male with the dorsal plate of seventh segment of hind body slightly sinuate, ventral plate produced in a broad angle.

In nests of *Formica rufa*. Rather common in the London and Midland and South-Eastern districts; also occurs near Scarborough and York; I cannot, however, find any record from the north of England, but the species probably occurs, as in Scotland it is found locally in the Tay, Dee, and Moray districts.

T. inquilina, Maerk. (*diversa*, Rey, *Euryusa Kirbii*, Janson). Allied to the preceding, but easily distinguished by its smaller size, shorter and thicker antennæ, of which the third joint is not longer than the second, and especially by the shape of the thorax, which is plainly broader at base than the base of the elytra; the punctuation of the front parts of the body is somewhat closer, and the elytra are often a little more brightly coloured: in the male the dorsal plate of seventh segment of hind body is truncate, and the ventral is prolonged and almost rounded. L. $2\frac{2}{5}$ mm.

Rare; in nests of *Formica fuliginosa*; first taken by Mr. F. Squire in 1857 in the London district, and found subsequently by Dr. Power and others; Mickleham, Charlton, Darenth, Maidstone, Abbey Wood (Kent), Tilgate Forest, Burnham Beeches; Guestling, near Hastings.

ISCHNOGLOSSA, Kraatz.

This genus contains a few species concerning two or three of which some confusion has arisen: at present there are three species in the British catalogues, but the *I. proluxa* of our lists appears to be at most a variety of *I. proluxa*, Grav., = *I. rufopicea*, Kr., and with regard to our third species, *I. corticina*, Er. (which Thomson places in a separate sub-genus *Dexiogyga*), Mulsant and Rey remark, "We will not insist on this well-known species, and will limit ourselves to saying that it is only distinguished from the preceding (*I. rufopicea* and *semirufa*) by its less shining colour and smaller size, by having the thorax more visibly sinuate near the posterior angles, and by the absence of erect hairs on the sides;" the last of these characters appears to be by no means a certain one, as erect hairs are visible on the sides of the thorax in both species; in other points, however, they appear to be sufficiently distinct: they are found under bark of various trees both standing and fallen.

Form larger and broader; sculpture of thorax

and elytra rather coarser. I. PROLIXA, Grav. (*rufopicea*, Kr.).

Form smaller and narrower; sculpture of

thorax and elytra finer I. CORTICINA, Er.

I. proluxa, Grav. (*corticalis*, Steph., *rufopicea*, Kr., *proluxa*, Kr., *Stichoglossa proluxa*, Muls. et Rey). Of a lighter or darker reddish colour, with the head, and a greater or less part of hind body before apex darker, apex itself testaceous; antennæ entirely red, moderately

thickened, third joint hardly longer than second, 6–10 strongly transverse; thorax broader than long, with sides not strongly rounded, rather closely punctured; elytra a little longer, and evidently more strongly punctured than thorax, reddish with the region round scutellum and the posterior angles more or less broadly darker; hind body rather strongly punctured, a little more finely so on the sixth segment, parallel-sided until towards apex; legs clear reddish testaceous. L. 3 mm.

Male with the dorsal plate of seventh segment of hind body sometimes obsoletely crenulated, ventral plate prolonged.

Under bark of various trees; not uncommon in the Southern and Midland districts, but very rare in the north; Chatham, Darenth Wood, Shirley, Richmond, Putney, Croydon, Dulwich, &c.; Tonbridge; New Forest; Hastings under oak-bark; Burton-on-Trent and many midland localities; Liverpool; Manchester; Northumberland district, very rare; Scotland, very rare, Tay district.

The var. *prolixa* (*I. prolixa*, Kr., Sharp's Cat., &c.) differs from the type form in being entirely red, the head only and one or two segments of hind body before apex being of a pitchy black colour. Apparently very rare; Cobham; Loughton.

I. corticina, Er. (*varia*, Heer.). This species much resembles the preceding, but is distinctly smaller and narrower, and has the elytra rather less convex and evidently more finely and shallowly although not less closely punctured; according to Erichson the pubescence is somewhat different in colour, and the upper surface is duller; the specimens, however, that I have seen appear to be rather brighter than ordinary specimens of *I. prolixa*. L. $2\frac{1}{2}$ mm.

The ventral plate of the seventh segment of hind body in the male appears to be more prolonged than in the preceding species, and the dorsal plate is very obsoletely crenulated, but often shows traces of a larger tooth at each extremity of its apical margin.

Under bark; rare; Bromley (Kent), and Mickleham; Bournemouth; New Forest; Needwood Forest; Sherwood Forest; Olton; Dudley; Repton; Northumberland district, one example, Gosforth Woods; Scotland, very rare, Lowlands, Forth district only.

OCYUSA, Kraatz.

About a dozen European species are contained in this genus; of these two have been usually reckoned as British: two others, however, must apparently be added, which have hitherto been known as *Oxypoda incrassata* and *Aleochara hibernica*; these two species certainly differ considerably *inter se*, and also from our other members of the genus, but they are regarded by continental authorities as belonging to it, and at all events can hardly be retained in the genera to which they are at present referred in our catalogues: it is most probable that the genus *Ocyusa* will itself have to be subdivided; the species belonging to it occur in moss, under refuse, &c.

- I. Elytra not or scarcely broader than thorax; form parallel or almost parallel.
- i. Antennæ short; elytra at suture shorter than thorax, which is transverse; legs and antennæ pitchy or pitchy-red *O. INCRASSATA, Muls.*
 - ii. Antennæ long; elytra at least as long as thorax, which is not transverse; legs and base of antennæ clear testaceous yellow *O. HIBERNICA, Rye.*
- II. Elytra plainly broader than thorax and hind body; antennæ long.
- i. Thorax not narrowed behind; antennæ except base, and legs, dark *O. MAURA, Er.*
 - ii. Thorax slightly narrowed behind; antennæ and legs (except femora which are darker) reddish testaceous *O. PICINA, Aubé.*

O. incrassata, Kr. (*Oxypoda aterrima*, Wat., *Leptusa nigra*, Bris.)

Upper surface entirely black, rather dull, clothed with rather sparing greyish pubescence; head rather large, almost as broad as thorax, antennæ short, pitchy or reddish pitchy, third joint shorter than second, 5–10 strongly transverse; thorax broader than long with an impression before scutellum and a more or less obsolete central furrow, very finely punctured; elytra at suture slightly shorter than thorax, finely punctured, but evidently more strongly so than thorax; hind body parallel-sided, very finely and closely punctured, the punctuation becoming a little less close behind; legs pitchy red, posterior tarsi not long, with the first joint equal to the two following united. L. $2\frac{1}{2}$ mm.

In moss, among leaves, under bark, &c.; occasionally by sweeping; local, and as a rule not common; London district, rare, Sheerness, Shirley; Snowdon; Dean Forest; Midland districts, not uncommon, Coleshill, Needwood and Sherwood Forests; Knowle; Foremark near Repton, Burton-on-Trent (in some numbers in dry moss on an old wall in a wood); Liverpool; Scotland, local, Lowlands, Highlands, and Alpine; Solway, Forth, Tay, Clyde, and Dee districts.

It is probable that this species will form the type of a new genus: Mulsant and Rey suggest the name *Mniusa*.

O. hibernica, Rye. Linear, pitchy-black, with the legs and four basal joints of the antennæ testaceous; head shining, rather plainly but not closely punctured, nearly smooth on disc; thorax somewhat convex, more closely punctured than the head, with an obsolete fovea at base; elytra almost longer than thorax, and more strongly but less closely and somewhat rugosely punctured; hind body shining, upper surface somewhat closely punctured, almost smooth at apex. L. 3 mm.

A single specimen was taken by Mr. Champion, in June, 1876, out of moss at the top of Slieve Donard (a mountain 2800 feet high, co. Down, Ireland), in company with *Oxypoda rupicola*, and other hill-frequenting species, and Dr. Sharp has taken a specimen at Braemar.

This species is very closely allied to *O. nigrata*, Fairm., but differs in its longer and lighter antennæ and lighter femora; the punctuation also is a little finer and closer; Mr. Rye, in describing the species, remarks that it is of the size, and somewhat of the build of *Homalota cambrica*,

Woll., but is darker, more convex, elongate, and shining, less closely punctured, with shorter antennæ, &c.

O. maura, Er. Rather convex, finely pubescent, shining black; head large, nearly as broad as thorax, antennæ long, pitchy or dark ferruginous with the base lighter, third joint a little shorter than second, 4–6 not transverse, seventh slightly, 8–10 plainly transverse; thorax subquadrate, about as long as broad, with sides scarcely rounded, rather finely and thickly punctured; elytra plainly broader but scarcely longer than thorax, thickly and rather strongly punctured; hind body parallel, with the front segments strongly impressed horizontally, finely and not closely punctured; legs pitchy or pitchy red, with the knees, tarsi, and sometimes tibiæ lighter. L. $2\frac{1}{2}$ mm.

Male with the ventral plate of seventh segment of hind body prolonged.

Marshy places, under refuse, at roots of grass, &c.; not uncommon in the London, Southern, and Midland districts; rarer further north, and not recorded from Scotland.

O. picina, Aubé (*fulvicornis*, Fairm., *ruficornis*, Kr.). Very closely allied to the preceding, but rather larger, and easily distinguished by its reddish antennæ and legs, and less strong punctuation; the pubescence also is a little closer, and the antennæ are a little longer; the thorax is slightly narrowed behind; the hind body is a little more closely punctured, and the fifth segment is horizontally impressed at base; the upper surface is never as black as in *O. maura*, and occasionally it is entirely of a pitchy brown colour. L. $2\frac{2}{3}$ mm.

Marshy places; in moss at the roots of trees, at roots of grass, in the stems of water-plants, &c.; local and not common. London district rare; Waddon (Surrey), Cowley, Maidstone, Bearsted, Balcombe (Hayward's Heath); Tonbridge; Shirley Warren, Southampton; Horning Fen; Bewdley; Sutton Park, near Birmingham (taken abundantly by Mr. Blatch).

PHLÆOPORA, Erichson.

At present there are about thirty species known of this genus, which have been found in most parts of the world: Dr. Sharp, who has lately described twelve new species from Central America, is of opinion that in all probability South and Central America will be found to be the headquarters of the genus; they are found under bark: the two British species may be distinguished as follows:—

Elytra entirely, or almost entirely, red; upper surface rather dull, with close pubescence; elytra longer . . .	P. REPTANS , Grav.
Elytra usually dark brown, or red only towards apex; upper surface rather shining with less close pubescence; elytra shorter	P. CORTICALIS , Grav.

The larva of *Phlæopora reptans* is described and figured by Perris, Ann. Fr. 1853, p. 557, P. 17, Fig. 1–8: it is about 3 mm. in length, linear and elongate, of a livid white colour, with the head and thoracic segments reddish; the head is rather large

and elliptical, and the prothorax is nearly as large as the meso- and meta-thorax together; the first seven abdominal segments are of equal length, the eighth is prolonged in a short and bluntly pointed process above the ninth, which bears a rather thick and moderately long ambulatory anal appendage, which is bilobed at apex, and two very short cerci: the sides of all the segments of the body are strongly setose.

This larva lives in the galleries of species of *Tomicus*, and devours their larvæ and pupæ; it changes into a pupa in these galleries without any preparation: the pupa is white and very soft, and presents no peculiarities that need be noticed.

P. reptans, Grav. Rather long and narrow, dull black or pitchy, with the elytra red and the apex of hind body reddish testaceous; head not much narrower than thorax, antennæ short, slightly thickened, reddish testaceous, sometimes a little darker towards apex, second and third joints of about equal length, 4–10 transverse, the latter strongly so, last joint oval hardly as long as the two preceding; thorax scarcely transverse, very finely and thickly punctured; elytra longer than thorax, and a little less finely and closely punctured, entirely red with the scutellary region sometimes darker; hind body parallel-sided with segments 2–5 more or less strongly impressed horizontally, finely and thickly punctured in front, less closely behind; legs rather short, reddish testaceous. L. $2\frac{1}{2}$ mm.

Male characters indistinct.

Under bark of various trees, especially pines and firs; widely distributed and not uncommon in England and Wales and Scotland, and probably also in Ireland.

P. corticalis, Grav. (*transita*, Muls. et Rey). Resembles the preceding, but is smaller, darker, and more shining, with the elytra entirely black or pitch-brown or red towards apex; the thorax is a little more narrowed towards base, so that it appears plainly narrower than the elytra; the elytra are shorter in proportion to the thorax, and the hind body is more uniformly coloured. L. $2\frac{1}{4}$ mm.

Under bark, especially of pines; scarce, but somewhat widely distributed; Mickleham, Shirley, Richmond Park, Dulwich, Weybridge, Hampstead, Addington (*Cossus* trees), The Holt (Farnham); Holm Bush, Brighton; Hastings; Cannock Chase; Needwood and Sherwood Forests; Tamworth; Sutton Park; Repton; Chat Moss; not recorded from the north of England or Scotland.

V. transita, Muls. et Rey. This variety, considered by Rey to be a distinct species, is in colour intermediate between *P. reptans* and *corticalis*, the elytra being for the most part red; the elytra are a little longer than in type specimens of *P. corticalis*, and the upper surface is a little duller with rather closer pubescence; it cannot, however, be considered a distinct species.

I have received an English specimen from M. Fauvel, but I do not know its locality.

OCALEA, Erichson.

About twenty species are at present contained in this genus; they are all found in the European and Mediterranean region with the exception

of one from Japan and one from Central America; our species are shining chestnut-brown insects, and are rather conspicuous: they are found in moss, dead leaves, faggots, at roots of grass, &c.

I. Elytra finely and thickly punctured.

- i. Elytra narrower; antennæ rather shorter and more

thickened towards apex O. CASTANEA, Er.
(*picata*, Steph.)

- ii. Elytra broader; antennæ slightly longer and more
slender

O. LATIPENNIS, Sharp.

II. Elytra rather strongly punctured O. BADIA, Er.

O. castanea, Er. (*picata*, Steph., *rivularis*, Mill.?). Shining pitchy black with the thorax and elytra chestnut-brown (the elytra being much lighter than thorax), and the apex of hind body testaceous; head rather large, antennæ long, gradually, but slightly, thickened to apex, ferruginous with base lighter, second and third joints about equal in length, 4–7 longer than broad, 8–10 as long as broad, eleventh plainly longer than the two preceding together; thorax about as long as broad, narrowed in front, finely punctured, with an impression before scutellum, and sometimes an obsolete central furrow; elytra scarcely longer than thorax, finely, thickly, and rugosely punctured; hind body narrowed from fourth segment to apex, finely and sparingly punctured, with segments 2–4 strongly impressed horizontally at base; legs long, testaceous. L. $4-4\frac{1}{2}$ mm.

Male with ventral plate of seventh segment of hind body sinuate at sides of apical margin and produced in the middle in an angle.

In moss, dead leaves, faggots, &c.; rather common and widely distributed throughout England and Wales and Scotland; I have found it in abundance in faggots in Langworth Wood near Lincoln, but it usually occurs in small numbers.

V. rivularis, Mill.? This variety differs from the type in having the elytra somewhat more coarsely punctured, and the hind body smoother; Mulsant and Rey consider it to be a variety of *O. castanea*, but in the catalogue of Heyden, Reitter, and Weise it is given as synonymous with *O. latipennis*, Sharp, and the specimens in Dr. Sharp's collection labelled *rivularis* appear to be more closely related to the latter species than to the former. Mr. Champion has taken this insect not uncommonly on the banks of the Thames near Putney and Hammersmith, but has never found it in company with *O. castanea*.

O. latipennis, Sharp. Allied to *O. castanea*, but rather larger, and darker in colour: the elytra are considerably broader, so that the thorax appears much narrower in proportion; the antennæ are slightly longer and more slender, and not quite so much thickened towards apex, the length of every joint being distinctly longer than its width; the thorax is black, and has the posterior angles obtuse, but more marked than in the preceding species; the hind body is sparingly and finely punctured, and a little yellowish at apex. L. $5-5\frac{1}{2}$ mm.

Rare; usually on the banks of rivers; Tonbridge; Manchester; Hartlepool; banks of Irthing and Mersey; Scarborough; Wallington, Northumberland; Scotland, rare, Forth and Solway districts (banks of Nith and Avon).

O. badia, Er. (*prolixa*, Gyll.). This species resembles *O. castanea*, but is easily distinguished by its smaller size, and the less close and coarser punctuation of the head, thorax, and elytra, which latter are usually, but not always, of a lighter colour; the thorax is almost as broad as the elytra, which gives the insect a more parallel appearance; the posterior tarsi, also, are rather longer in proportion to the tibiae. L. $3\frac{1}{3}$ – $3\frac{3}{4}$ mm.

In moss, dead leaves, &c.; very common in the London district; not so common but somewhat widely distributed in the South and the Midlands; rarer further north; Hartlepool; Northumberland, rare; Scotland local, Lowlands, Forth and Solway districts.

ILYOBATES, Kraatz.

This genus contains about eight European species, which are chiefly confined to the central and southern portions of the Continent, one species from Morocco, and another from Japan; there are four British species, three of which are found in moss, flood refuse, sandpits, &c., and one occurs in company with ants; from continental observations, however, it is probable that most of the species of the genus are more or less myrmecophilous; with the exception of *I. nigricollis* they are extremely rare in our country.

- I. Head, thorax, and elytra thickly and strongly punctured, dull; fourth and fifth joints of antennæ not much shorter than the following ones I. NIGRICOLLIS, Payk.
- II. Thorax finely punctured more or less shining.
 - i. Antennæ plainly but gradually thickened; fourth and fifth joints not differing much in length from the following ones I. PROPINQUUS, Aubé.
 - ii. Antennæ plainly thickened, but with joints 5–10 nearly equal in breadth; fourth and fifth joints short or very short.
 - 1. Thorax narrower with sides almost straight in middle; elytra a little longer than thorax . . . I. FORTICORNIS, Lac.
 - 2. Thorax broader, somewhat orbicular; elytra at suture slightly shorter than thorax I. GLABRIVENTRIS, Rye.

I. nigricollis, Payk. Of a dull red colour with the thorax black, and the head brownish or blackish; the hind body is darker before apex, which is testaceous; upper surface of head, thorax, and elytra thickly pubescent, thickly and rugosely punctured; head nearly as broad as thorax, antennæ red with the apex of the last joint usually lighter, plainly and gradually thickened, second and third joints nearly equal, 4–10 transverse, but not strongly so (as the antennæ are a little flattened they appear more or less transverse according to the view taken of them), last joint as long as the two preceding together; thorax about as broad

as long, with sides rounded and narrowed in front; elytra longer and broader than thorax; hind body parallel-sided until near apex, with segments 2-5 strongly impressed horizontally, the impressions being rugosely punctured, punctuation sparing towards apex; legs reddish testaceous, posterior tarsi with first joint equal to the three following united. L. $3\frac{1}{2}$ - $4\frac{1}{2}$ mm.

Male with the ventral plate of seventh segment of hind body angularly produced and ciliate, thorax with an obsolete furrow behind (which is wanting in female).

In moss, flood refuse, under stones, &c.; rare, although somewhat widely distributed. Notting Hill (formerly), Birch Wood, Reigate, Amberley, Rusper; Shipley, near Horsham; Folkestone; Hastings; Parkhurst Forest, Isle of Wight; Horning and Wicken Fens; Worcester, banks of Severn; Knowle, near Birmingham (under bones); Stalybrushes, Cheshire; Scarborough; Lincoln; Northumberland district, in dead leaves in Gibside Woods and on a moor near Lanercost; Mr. Bold remarks that the latter specimens are "scarcely more than one-half" as large as the former; Scotland, rare, Solway, Tweed, Forth, and Clyde districts; Ireland, Malahide near Dublin.

This species appears to vary considerably in colour, the thorax being occasionally red; the punctuation of the thorax also is somewhat finer in some specimens than in others; according to Mulsant and Rey it is almost always found in company with ants in France.

I. propinquus, Aubé (*rufus*, Kr.). This species is easily distinguished from the preceding by the much finer punctuation and more shiny appearance of the head and thorax; the colour is entirely lighter or darker red with the apex of hind body testaceous, and the elytra lighter; the antennæ are perhaps a little less thickened; the punctuation of the elytra is distinctly feebler but more confused and wrinkled, and the longitudinal impressions on the front segments of the hind body are rather more strongly punctured. L. $3\frac{1}{2}$ -4 mm.

Male characters much as in the preceding.

In sandpits, &c.; very rare; Shirley, Mickleham (banks of Mole), Reigate, West Wickham; Littlehampton; Fairlight, near Hastings; the species is found rarely in France under stones in company with *Formica rufa* and *Myrmica rubra*; the British specimens that I have seen are much smaller than ordinary *I. nigricollis*, but, as a general rule, it appears to be only slightly smaller than that species.

I. forticornis, Lac. More linear, more shining, less pubescent, and less strongly punctured than either of the preceding species; colour very variable, pitchy black, or brown, or reddish, with the apex of the elytra and of the hind body lighter; occasionally the basal segments of the latter are lighter than the apical ones; antennæ brownish with base lighter or entirely red, strongly and uniformly thickened from fourth joint, fourth very short, fifth exceedingly short (a point that will at once distinguish it from either of the preceding species), 6-10 strongly transverse, but all much longer than 5th; thorax as broad as long, scarcely narrowed in front, and hardly rounded at sides, finely and rather sparingly punctured; elytra as long as thorax finely and not closely

punctured; hind body parallel-sided, almost smooth except that the transverse impressions on the front segments of hind body are strongly and rugosely punctured; legs reddish testaceous, posterior tarsi with the first joint equal to the three following united. L. $3\frac{1}{3}$ mm.

Male with the ventral plate of seventh segment of hind body slightly prolonged in an obtuse or rounded angle.

In mess, sandpits, flood refuse, &c.; very rare; Snodland (Kent), Caterham, Shirley, Walton-on-Thames, Riddlesdown, West Wickham, Margate, Reigate; recorded as very rare in *Polyporus versicolor* at Fordlands, Exeter, in Parfitt's Devonshire catalogue, but this may perhaps be in error: this species does not appear to be ever associated with ants in France, although it is common and widely distributed.

I. glabriventris, Rye (*Bonnairei*, Fauv.). Shining, entirely ferruginous-testaceous, with the head and more or less of hind body sometimes darker; head almost smooth, antennæ rather short, thickened, with joints 4–10 strongly transverse, 4–5 very short; thorax somewhat orbicular with sides plainly rounded, extremely finely and closely punctured; elytra at suture shorter than thorax, sometimes darker about scutellum, very finely punctured; hind body parallel-sided, dark red, or pitchy brown, with the apex of the segments light, front segments closely punctured at base, hinder segments finely and diffusely punctured, sixth segment smooth; legs reddish testaceous. L. 3 mm.

This species was found by Dr. Power in May and June 1863 in the runs of *Formica fuliginosa*, and has not since been captured; it did not occur in the nest of the ants.

Mr. Rye introduced the species as *Oxyptoda glabriventris*, and compares it with *O. lucens*; he also says that "in general appearance it somewhat resembles *Ischnoglossa corticalis*, but with the antennæ of *Ilyobates forticornis*:" it is identical with the *I. Bonnairei* of M. Fauvel, and there seems some doubt as to which name is entitled to priority.

CALODERA, Mannerheim.

This genus comprises about forty species, about half of which occur in Europe; several, however, have been described from South America, especially from Chili, and from Australia; and it is most probable that many others will be found; there are five British species, two of which, *C. rubens* and *C. umbrosa*, differ very considerably from the rest and from each other: these have been placed by Thomson in different genera, *Itiocara* and *Amarochara* respectively.

I. Elytra much broader than thorax.

i. Length 3–4 mm.; third joint of antennæ twice as long as fourth.

1. Length $3\frac{3}{4}$ –4 mm.; upper surface deep black, somewhat dull C. NIGRITA, Mann.
2. Length 3 mm.; upper surface black, very shining . . . C. RIPARIA, Er.

- ii. Length 2 mm. ; third joint of antennæ very small, not much longer than fourth. C. ÆTHIOPS, Grav.
- II. Elytra scarcely broader than thorax; form more or less linear.
 - i. Upper surface very dull, pitchy brown or reddish; head orbicular; length $3-3\frac{1}{2}$ mm. C. RUBENS, Er.
 - ii. Upper surface shining black or pitchy black; head almost square; length $2-2\frac{1}{2}$ mm. C. UMBROSA, Er.

C. nigrita, Mann. Of a deep black colour, very finely and thickly pubescent; head nearly as broad as thorax, antennæ long, evidently longer than head and thorax together, pitchy with base lighter, third joint plainly shorter than second, 4-6 slightly transverse, the following joints as long as broad, eleventh about as long as the two preceding together; thorax longer than broad, rather strongly narrowed in front, much narrower at base than base of elytra, with a broad and not deep central furrow, very finely and thickly punctured; elytra square, longer than thorax, very finely punctured; hind body almost parallel-sided, a little broader behind, with the second to the fifth segments horizontally impressed at base, the impressions being rugosely punctured, punctuation of the rest of the surface very close and fine; apex lighter; legs black or pitchy black with the knees and tarsi reddish testaceous. L. $3\frac{1}{2}-3\frac{3}{4}$ mm.

Male with ventral plate of seventh segment of hind body slightly prolonged.

In marshy places; rare; Notting Hill and Hammersmith Marshes; Forest Hill, Surrey; Reigate; Hampstead.

C. riparia, Er. Somewhat similar to the preceding in form, but with the elytra broader in proportion and more convex and the thorax shorter; the upper surface is deep black or pitchy black, very shining, the extreme apex of hind body being light; head nearly as broad as thorax, antennæ long, ferruginous with base lighter; third joint twice as long as fourth, 5-10 transverse; thorax about as long as, or slightly longer than, broad, strongly narrowed in front, much narrower at base than elytra, very finely and thickly punctured, with a more or less obsolete impression before scutellum; elytra hardly longer than thorax, rather more strongly punctured than thorax; hind body almost parallel-sided, a little broader behind, finely and sparingly punctured, with segments 2-4 impressed at base, the impressions being rugosely punctured; legs pitchy or pitchy red with the knees, tarsi, and sometimes tibiæ lighter. L. 3 mm.

Male with ventral plate of seventh segment of hind body produced in an obtuse angle.

In marshy places; rare; has only been found in the London district and in Scotland, but probably occurs in the intermediate districts; Wimbledon, Shirley, Norwood (in some numbers, Rev. H. S. Gorham), Cowley, Shooter's Hill, Tonbridge; Scotland, rare, Lowlands, Forth, Solway, and Clyde districts.

C. æthiops, Grav. Very like the preceding, but much smaller and a little less shining; the third joint of the antennæ is much shorter; the elytra also are not quite so long in proportion; the hind body is plainly duller and a little more parallel-sided, more regularly and thickly punctured, and with closer and thicker pubescence; the colour is somewhat variable, the elytra passing from pitchy black to pitchy brown or reddish; light reddish examples are sometimes found, but these appear to be only immature specimens. L. $2-2\frac{1}{2}$ mm.

In marshy places, at roots of grass, &c.; locally plentiful, but not generally, although somewhat widely distributed; London district, common; Devonshire; Shirley Warren, Southampton; Needwood Forest, Staffordshire; Scotland, local, Lowlands, Dee and Solway districts.

C. rubens, Er. (*Ityocara rubens*, Thoms.). Linear and almost parallel-sided, the elytra being very little broader than thorax, of a dull pitchy black or reddish brown colour, thickly and closely pubescent; head orbicular, antennæ dark testaceous with first joint and often the last yellow, second joint much longer than third, 5-10 almost equal, transverse, but not strongly so, eleventh oval not as long as the two preceding together; thorax at least as long as broad, only slightly narrowed in front, thickly punctured, with a more or less obsolete impression at base; elytra a little longer than thorax and a little more distinctly, although very finely, punctured; hind body parallel, very closely pubescent and finely punctured; legs reddish testaceous. L. $3-3\frac{1}{2}$ mm.

Male with the ventral plate of seventh segment of hind body considerably produced.

In marshy places, amongst flood refuse, &c., during early spring; very local; first taken by Dr. Power at Lee, Kent, and afterwards at Cowley, near Uxbridge; it has occurred in large numbers in the former locality.

C. umbrosa, Er. (*Amarochara umbrosa*, Thoms.). Elongate, rather narrow, and parallel, the elytra being hardly broader than thorax, shining pitchy black, clothed with fine, rather short, and somewhat sparse pubescence; head almost square, antennæ rather long, but stout and uniformly thickened from the fifth joint, dark with the base sometimes lighter, third joint plainly shorter than second, fourth very short, 5-10 strongly transverse; thorax about as long as broad with sides only slightly rounded, nearly as broad as elytra, very finely punctured; elytra about as long as, or slightly longer than, thorax, pitch-black or occasionally reddish brown, very finely punctured; hind body parallel-sided, with segments 2-4 impressed at base, finely and rather closely punctured, almost smooth at the apex of each segment; legs pitchy red or reddish testaceous. L. $2-2\frac{1}{2}$ mm.

Male with the ventral plate of seventh segment of hind body slightly produced.

In damp sandpits, in moss in woods, under dead leaves, and in decaying fungi, &c.; occasionally by sweeping; rare; Shirley, Caterham, Claygate, Bromley, Darenth,

Chatham, Faversham, Wandsworth, Wimbledon, Charlton, West Wickham; Deal; Plymouth.

CHILOPORA, Kraatz.

This genus comprises about five European species which have very much the general appearance of *Tachyusa*, but differ from that genus in having the tarsi all distinctly five-jointed: our two species were originally associated by Erichson with *Calodera*; they chiefly differ from the species belonging to that genus in their longer and more slender antennæ, of which the second and third joints are of equal length, and the penultimate joints are hardly, if at all, transverse; they occur in marshy and damp places, chiefly on the banks of streams.

Upper surface dark, femora and antennæ more or less
pitchy C. LONGITARSIS, Er.
Upper surface more or less testaceous or reddish; legs
and antennæ entirely testaceous C. RUBICUNDA, Er.

C. longitarsis, Er. Dull black, very finely punctured, and clothed with extremely fine silky pubescence; head nearly as broad as thorax, antennæ long, dark with the base testaceous, second and third joints about equal in length, 4–6 longer than broad, 7–10 about as long as broad in female, slightly transverse in male; thorax slightly longer than broad, much narrower at base than elytra, with an impression before scutellum that is usually prolonged in a more or less obsolete central furrow; elytra a little longer than thorax; hind body parallel until near apex, with segments 2–4 rather strongly impressed horizontally at base, very finely punctured or shagreened; legs long, testaceous with femora more or less dusky, posterior tarsi nearly as long as tibiæ with first joint not quite as long as the three following. L. 4 mm.

Male with the ventral plate of seventh segment of hind body much prolonged beyond dorsal plate.

In marshy places and on the banks of streams; common and widely distributed throughout the country.

C. rubicunda, Er. Narrower than the preceding with the elytra distinctly shorter, and also narrower, so that the insect appears more linear and parallel-sided; the thorax is also more convex, and the posterior tarsi are slightly longer and have the first joint a little more elongate, about as long as the three following united; it may, however, be easily distinguished by its colour, which is rufo-testaceous or rufo-piceous with the head and more or less of hind body before apex darker; the legs and antennæ are entirely testaceous. L. $3\frac{1}{2}$ –4 mm.

Male with the ventral plate of seventh segment of hind body less prolonged than in the preceding species.

On the banks of streams; rare, but has occurred in some numbers in one or two localities. Bewdley Forest, sandy banks of Dowles Brook (W. G. Blatch); Clifton, near Manchester (Reston); Scarborough (Lawson); Cumberland; Northumberland

district, "Ravenworth Woods, banks of Devil's Water and Irthing, in rejectamenta" (Bold); Scotland, local, Solway district (Sharp), Clyde district, Paisley (Morris Young).

The genus *Gymnusa* ought to be inserted at the end of this division, if we keep accurately to the tarsal system; it has, however, been so long associated with *Myllana* and *Deinopsis* that it seems the best course to still keep these three genera together at the end of the Aleocharinæ; their connexion, however, is considerably slighter than it is usually supposed to be, and they might with reason be separated.

MYRMEDONIINA.

The members of this tribe have the anterior tarsi four-jointed, and the intermediate and posterior tarsi five-jointed: only a comparatively small number are found associated with ants, so that the name of the tribe is somewhat misleading, and might with advantage be changed to Homalotina; the number of genera contained in the tribe can hardly be stated with accuracy, as so many different opinions are held by authors regarding the division of the large genus *Homalota*.

- I. Elytra with sides reflexed upwards forming an explanate margin DINARDA, *Mammh.*
- II. Elytra without reflexed margin.
 - i. Thorax square, oblong, or transverse; prosternum scarcely developed in front of anterior coxæ.
 1. First three (apparent) dorsal segments of hind body furnished with lateral tufts of hairs ATEMELES, *Stéph.*
 2. First three (apparent) dorsal segments of hind body without lateral tufts of hairs.
 - A. First joint of posterior tarsi at least as long as the next two together.
 - a. Intermediate coxæ distant; antennæ stouter.
 - a*. Form rather broad; thorax square or transverse; insect winged MYRMEDONIA, *Er.*
 - b*. Form narrower; thorax oblong; insect apterous ASTILBUS, *Dillwyn.*
 - b. Intermediate coxæ contiguous; antennæ long and slender.
 - a*. Tarsi more elongate; form narrower; head less sunk in thorax.
 - a†. Neck broad; head narrower, not, or only slightly, depressed TACHYUSA, *Er.*
 - b†. Neck very narrow; head broader, very strongly depressed MYRMECOPORA, *Saulcy.*
 - b*. Tarsi less elongate; form broader; head more sunk in thorax GNYPETA, *Thoms.*
 - B. First joint of posterior tarsi not elongate; * last joint, as a rule, very long.

* *Homalota gregaria* and *H. pygmæa* are more or less exceptions; these species will be discussed under *Homalota*.

- a. Mandibles simple.
 - a*. Penultimate joint of maxillary palpi very much dilated *CALLICERUS, Grav.*
 - b*. Penultimate joint of maxillary palpi not, or very slightly, dilated.
 - a†. Intermediate coxæ distinctly separated.
 - *. Hind body more or less narrowed towards base and apex; thorax strongly transverse, habits parasitic.
 - †. First joint of intermediate tarsi about equal to second; posterior angles of thorax rounded (habitat in *Cossus*-burrows) *THAMIAERÆA, Thoms.*
 - ††. First joint of intermediate tarsi plainly shorter than second; posterior angles of thorax well marked (habitat in ants' nests) *NOTOTHECTA, Thoms.*
 - ** . Hind body parallel; thorax subquadrate, or but little broader than long; habits not parasitic *ALIANITA, Thoms.*
 - b†. Intermediate coxæ contiguous or nearly so *HOMALOTA, Mannh.*
 - b. Mandibles bifid *SCHISTOGLOSSA, Kraatz.*
- ii. Thorax more or less cordiform; prosternum plainly developed in front of anterior coxæ . . .
 - 1. Mandibles slender, unlike, the left simple, the right dentate *BORBOROPORA, Kraatz.*
 - 2. Mandibles not slender, both simple *FALAGRIA, Steph.*

DINARDA, Mannerheim.

This genus contains three species from Europe and one from Ceylon; they are found associated with ants; they differ from all the other Aleocharinæ by the broad turned up margin of the elytra; the thorax at base is much broader than the elytra, and has the posterior angles strongly produced.

Antennæ more strongly thickened; forehead scarcely impressed between eyes; posterior angles of thorax less prolonged; length $3\frac{1}{2}$ -4 mm. *D. MAERKELI, Kies.*

Antennæ less strongly thickened; forehead with a distinct longitudinal impression between eyes; posterior angles of thorax more prolonged; length 3 mm. *D. DENTATA, Grav.*

D. Maerkeli, Kies. Broad in front and strongly narrowed behind, of a dull black more or less ferruginous colour, with the sides of thorax and the elytra red, and the apex of hind body testaceous; head much narrower than thorax very thickly punctured, antennæ short and thick, pitchy, with the base red and the apical joint reddish testaceous, fourth joint moderately transverse, 5-10 strongly transverse; thorax fully twice as broad as long, much narrowed in front, with large explanate side border, posterior angles strongly produced, thickly covered with small

tubercles, the intervals being very finely shagreened; elytra about as long as thorax with posterior angles produced in a spine, sculptured like thorax but not so finely; hind body very strongly narrowed towards apex, sparingly sculptured towards base, much smoother behind; legs rather short and stout, ferruginous red. L. $3\frac{1}{2}$ –4 mm.

Male with dorsal plate of seventh segment of hind body strongly ciliate at apex, ventral plate produced.

In nests of *Formica rufa*; local, but not uncommon in some districts, and occasionally occurs in numbers. Plumstead, Chatham, Esher, Guildford; Hastings; Bewdley Forest, Worcestershire; Buddon Wood, Leicestershire; Scarborough: it appears not to be found further north.

D. dentata, Grav. Smaller than the preceding, and distinguished from it by the distinct longitudinal furrow on its head, and the less thickened antennæ; the thorax and elytra are a little less closely sculptured, and the former has the posterior angles a little more produced and sharper; the hind body is somewhat less narrowed behind, and is clothed with a little less long and less close pubescence; the general colour, moreover, is brighter. L. 3 mm.

In nests of *Formica fusca* and *sanguinea*; first found at Plymouth by Mr. J. J. Reading; Weston-super-Mare (Crotch); Shirley, near Croydon (Power); Guildford; recorded from Exeter as taken with *F. rufa*, and also by Dr. Sharp as occurring with that ant very rarely in the Tay district, Scotland; Mulsant and Rey say that it occurs equally with *F. rufa* and *F. cunicularia*; in Ent. Annual, 1864, p. 112, it is mentioned as having been taken in plenty by Messrs. Scott and Douglas near Croydon in company with *Formica sanguinea*, but these specimens were afterwards said to be small *D. Maerkeli*: the species are exceedingly closely allied, and have given rise to a great deal of confusion in our collections.

ATEMELES, Stephens.

This genus contains about six European and two or three North American species; they are found in company with ants; in appearance they closely resemble *Lomechusa*, but they are in many points rather widely distinct from that genus. Two species are British, one of which is extremely rare; they have the power of curling themselves up into a sort of ball, and in this position are quickly carried off by the ants with which they associate, when the nest is disturbed: when alive they bear a much more striking resemblance to some of their hosts than might be expected from an examination of dead specimens, and might easily be passed over by an inexperienced observer.

Thorax much narrowed in front; posterior angles strongly

projecting A. EMARGINATUS Payk.

Thorax hardly narrowed in front; posterior angles mode-

rately projecting. A. PARADOXUS, Grav.

A. emarginatus, Grav. Oblong, broad, of a dull ferruginous red colour, with the elytra and apex of hind body lighter, sometimes almost orange-coloured, and the head, a portion of hind body before apex, and

sometimes the disc of thorax dark; head much narrower than thorax, antennæ long and stout, entirely ferruginous, first joint much broadened, third much longer than second, 4-5 transverse, 6-10 longer than broad, eleventh very long and acuminate; thorax strongly transverse, finely sculptured, much narrowed in front, posterior angles strongly and sharply projecting, side margins very widely raised, disc somewhat convex with a more or less obsolete central furrow; elytra somewhat narrower and slightly longer than thorax, very finely punctured; hind body rather short, almost impunctate, with the front segments furnished at their sides with a thick yellowish fringe directed backwards, seventh segment very strongly emarginate with sides produced into a rather sharp lobe; legs ferruginous. L. 4 mm.

The sexual differences of the hind body appear to be slight and hardly noticeable.

In nests of *Formica fusca*, *Myrmica scabrinodis*, *ruginodis*, and *lævinodis*; according to Mulsant and Rey it occurs with "*Myrmica rubra*, and more rarely with *Formica fusca*, *rufa*, and *cunicularia*;" not uncommon in the London district and the Midlands, but I know of no locality further north than Lincoln, where I have taken it with *F. fusca*; it is recorded from Devonshire, Cheshire, and North Wales.

A. paradoxus, Grav. This very distinct species is easily separated from the preceding by the very different shape of the thorax, which is very little narrowed in front, so that the sides are almost parallel, and has the posterior angles very much less produced; the third joint of the antennæ is much longer in proportion to the second, and the penultimate joints are evidently shorter; the hind body also is evidently, although finely punctured, and also much less shining; the colour appears to be slightly darker. L. 4 mm.

In nests of *Myrmica lævinodis* and *Formica fusca*; according to Mulsant and Rey it is not rare in France under stones in the months of May and June in company with *M. rubra*, and occurs more rarely with *F. rufa* and *fuliginosa*; very rare in Britain; Charlton, Surrey; Folkestone (Lewis); Bournemouth (Saunders); Weston-super-Mare (Crotch): I took a single specimen in April, 1885, on the cliffs between Sandown and Brading, Isle of Wight.

MYRMEDONIA, Erichson.

This large and important genus is rightly called by Dr. Sharp a "polymorphic" genus, as it appears at first sight to be made up of many discordant elements; in fact there is no genus belonging to the Staphylinidæ in which the members have a more widely differing facies: the species are about one hundred in number, as at present described, but it is probable that they will be found to be far more numerous, as Dr. Sharp has lately described nineteen new species taken by Mr. Champion in Central America; the range of the genus is very wide, from Siberia and Russian America to Ceylon and South America; there are about thirty European species, of which nine are found in Britain; as a rule they are associated with ants, but it does not appear to be at all certain

in several cases that this is their invariable habitat : the first two species differ considerably from the others, and belong to the sub-genus *Zyras*, Stephens.

- I. Thorax much narrower than elytra with diffuse scattered punctures.
 - i. Thorax black; elytra reddish testaceous with posterior angles broadly darker; length 7 mm. . . . M. HAWORTHII, Steph.
 - ii. Thorax red; elytra black; length 4 mm. . . . M. COLLARIS, Payk.
- II. Thorax as broad or nearly as broad as elytra, closely punctured.
 - i. Thorax more or less strongly transverse, very finely punctured.
 - 1. Antennæ with last joint as long as the three preceding together; hind body plainly punctured in front, nearly smooth behind M. LIMBATA, Payk.
 - 2. Antennæ with last joint as long or hardly as long as the two preceding together; hind body quite smooth and shining.
 - A. Thorax moderately strongly transverse, $1\frac{1}{2}$ times as broad as long; antennæ elongate.
 - a. Upper surface entirely black, shining . . . M. FUNESTA, Grav.
 - b. Upper surface pitch-brown with the shoulders of elytra and more or less of hind body lighter.
 - a*. Basal segments of hind body entirely testaceous M. HUMERALIS, Grav.
 - b*. Apex only of basal segments of hind body testaceous. . . . M. COGNATA, Maerk.
 - B. Thorax very strongly transverse, twice as broad as long; antennæ shorter.
 - a. Elytra broadly testaceous at shoulders . . M. LUGENS, Grav.
 - b. Elytra unicolorous, black or dark pitchy brown M. LATICOLLIS, Maerk.
 - ii. Thorax subquadrate, not much broader than long; punctuation close, but deep and distinct; antennæ very long; elytra reddish testaceous M. PLICATA, Er.

M. Haworthi, Steph. This is the largest and finest of our species ; it is rather broad, finely and sparsely pubescent, with head, thorax, and hind body before apex shining black, and the rest of the upper surface except the posterior angles of elytra (which are broadly dark) reddish testaceous ; head much narrower than thorax, antennæ reddish testaceous with base lighter, moderately long and not stout, slightly thickened towards apex, third joint longer than second, 4-10 gradually a little thicker and shorter, 7-10 transverse ; thorax broader than long, with sides rounded in front and behind but almost straight in middle, with very diffuse coarse punctures, quite irregular at sides, and forming two somewhat irregular rows on disc with a smooth space between ; elytra considerably broader and hardly longer than thorax, very strongly and coarsely punctured ; hind body long with the basal segments strongly impressed and the impressions strongly punctured, apex of segments almost smooth ; legs testaceous. L. 7 mm.

Male with dorsal plate of seventh segment of hind body raised in middle and somewhat produced, and emarginate.

Very rare; in company with *F. fuliginosa*; taken in the vicinity of the nests by sweeping, also from under dead leaves and moss. Reigate, Dulwich Wood, and Sutton, Surrey (Dr. Power and others); The Holt, Farnham (Power); near Southend (Gorham); Bloxworth (O. P. Cambridge).

Dr. Sharp has a fine specimen in his collection from Bishops Wood, Hampstead, measuring 8-8½ mm.

M. collaris, Payk. Head, elytra, and apex of hind body black, thorax and rest of hind body reddish testaceous; head narrowed in front and behind, antennæ rather long, plainly and gradually thickened towards apex, brownish with the base ferruginous and the three or four apical joints more or less brightly testaceous, penultimate joints rather strongly transverse, thorax about as broad as long, with coarse diffuse punctures; elytra broader than thorax, and hardly longer, diffusely and not deeply punctured; hind body with sides slightly rounded, almost smooth behind, with base of front segments impressed and strongly punctured; legs testaceous. L. 4 mm.

Male with the ventral plate of seventh segment of hind body prolonged in the middle of its apical margin in a short plate which is emarginate, and presents the appearance of a short tooth at each side.

In company with various ants, or in their vicinity at roots of grass, in moss, &c., in marshy places: it does not, however, appear at all certain that this and the preceding are necessarily associated with ants. Wimbledon Common; Merton (Surrey); Shirley Warren, Southampton (in moss in a swamp); Wicken and Ranworth Fens; New Forest (in Sphagnum); Scotland, very rare, Tweed district only.

M. limbata, Payk. This species is easily distinguished by the very long terminal joint of the antennæ and the somewhat closely punctured hind body; the colour is pitchy brown or pitchy black with the base and sides of the elytra and the base of the hind body more or less testaceous; antennæ rather long, rather strongly and gradually thickened with penultimate joints very transverse, and the last joint as long as the three preceding; thorax moderately transverse, with sides narrowed in front and contracted slightly in almost a straight line towards base, very finely punctured; elytra about as long as thorax; hind body with basal segments finely and thickly punctured, apical segments more sparingly, but distinctly, punctured. L. 5 mm.

Male with the dorsal plate of seventh segment of hind body strongly emarginate in a semicircle, the emargination being very finely denticulate and ending at each side in a sharp tooth, thorax broadly and distinctly impressed longitudinally.

In nests of *Formica flava* and *fusca*, and has also been recorded as associated with *F. fuliginosa*, also found under stones, in moss, &c., near the nests; not uncommon in the south; London district, generally distributed; Hastings; Swannage; Isle of Wight (Ventnor, Sandown, &c.); Bristol; Sherwood Forest; Liverpool; Northumberland district, banks of Irthing; Scotland, very rare, Tweed district only.

M. funesta, Grav. A shining black species, which in colour and general appearance very much resembles the ant with which it is invariably associated—*F. fuliginosa*—particularly when it is alive; the antennæ are reddish brown, gradually thickened towards apex, with the penultimate joints moderately transverse; thorax about half as broad again as long with sides rounded in front and contracted behind, finely punctured; elytra about as broad, and hardly as long as, thorax, very finely punctured; hind body entirely smooth and [shining; legs pitchy with tibiæ, and often tarsi, lighter. L. 5–5½ mm.

Male with dorsal plate of seventh segment of hind body broadly truncate and finely and obsoletely crenulate on apical margin, thorax broadly furrowed before scutellum.

Not uncommon in the London district and the south, but is not found further north.

M. humeralis, Grav. A large and conspicuous species; pitchy brown, with the thorax often lighter, and the elytra and base of hind body more or less broadly testaceous; head thickly punctured, antennæ reddish brown with the base and more or less of apical joint lighter, penultimate joints somewhat strongly transverse, last joint as long as the two preceding; thorax about half as broad again as long, with sides rounded in front, and slightly contracted in almost a straight line to base, very finely punctured; elytra about as long as thorax, very finely punctured; hind body with three or four basal segments and the apex testaceous, entirely smooth; legs testaceous or reddish testaceous. L. 6 mm.

Male with the seventh dorsal segment of hind body truncate and obsoletely crenulate on apical margin, thorax broadly furrowed before scutellum.

In nests of *Formica rufa*, and has been recorded from nests of *F. fuliginosa*, but the latter habitat appears doubtful; rather common in the London, Southern, and Midland districts; Yorkshire, Scarborough, &c.; Scotland, local, Tay and Dee districts.

M. cognata, Maerk. A darker and more dusky-looking species than the preceding, and smaller, pitchy-black or brown with the shoulders of elytra and the apex of the basal segments of hind body testaceous; antennæ entirely reddish, with the basal joint a little lighter, with penultimate joints strongly transverse, more so than in the preceding species; thorax half as broad again as long, with sides more rounded than in *M. humeralis*; elytra about as long as thorax, and, together with it, very finely punctured; hind body almost entirely smooth; legs ferruginous. L. 5 mm.

Male with the dorsal plate of seventh segment of hind body broadly and feebly emarginate and obsoletely crenulate, thorax with an obsolete longitudinal furrow.

In nests of *Formica fuliginosa*; very local, but sometimes not uncommon where it occurs; it has only been found in the London district; Mickleham, Croydon, Tilgate Forest, and Tonbridge.

M. lugens, Grav. This species has very much the appearance of *M. cognata*, which it resembles rather closely in colour, but it is easily distinguished by its more transverse thorax and distinctly shorter and thicker antennæ, which are dark with the basal joints lighter, instead of being entirely red, as in the preceding species; the penultimate joints are also much more strongly transverse; the elytra are a little longer than the thorax, and have the shoulders a little more broadly testaceous; the thorax and elytra are very finely punctured, and the hind body is entirely smooth and shining; legs reddish testaceous. L. $4-4\frac{1}{2}$ mm.

Male with the ventral plate of seventh segment of hind body broadly emarginate on apical margin, thorax longitudinally impressed.

In nests of *Formica fuliginosa*; local and almost entirely confined to the London district, as at present known; not uncommon sometimes where it occurs. Mickleham, Sydenham, Croydon, Caterham, Chobham, Tilgate Forest; Battle, near Hastings.

M. laticollis, Maerk. A very distinct species, rather smaller than any of the preceding, and easily distinguished by its almost uniform dull black colour and very transverse thorax, of which the sides are strongly rounded; head finely and rather thickly punctured, antennæ lighter or darker reddish or reddish brown with the base lighter, penultimate joints strongly transverse; thorax quite twice as broad as long, about as broad at base as base of elytra, very finely punctured; elytra very transverse, but a little longer than thorax, very finely and thickly and somewhat rugosely punctured, not quite as black as the rest of the body, and occasionally obscurely brownish; hind body almost impunctate, smooth and shining; legs reddish testaceous. L. $3\frac{1}{2}-4$ mm.

Male with the dorsal plate of seventh segment of hind body broadly truncate and finely denticulate on its apical margin, thorax with an obsolete central furrow.

In nests of *Formica fuliginosa*; not uncommon in the London district and the south, but not found further north. Mickleham, Croydon, Norwood, Chatham, Tilgate Forest, Shipley near Horsham, Rusper, &c.; I have taken it in some numbers at the top of Luccombe Chine, Isle of Wight, by placing grass in a tree inhabited by *F. fuliginosa*, and shaking it three or four days after over a sheet of paper.

M. plicata, Er. A rather long, somewhat parallel-sided species, apterous, of a reddish-testaceous colour, with the head, thorax, and a greater or lesser portion of hind body before apex pitchy; head rather strongly and thickly punctured, antennæ long, entirely red, or brownish-red, with the penultimate joints not transverse, and the last joint not as long as the two preceding; thorax subquadrate, about as long as broad, with sides almost straight, thickly and rather strongly and deeply punctured; elytra only slightly longer than thorax, entirely reddish yellow, rather more finely punctured than thorax with the punctuation sometimes a little rugose; hind body very finely and thickly punctured in front, almost smooth behind, fourth and fifth segments with raised prominences in middle. L. 4-5 mm.

Very rare; has only been taken in Britain by the late Mr. F. Smith and his son,

who found it in 1865 in the nests of the small ant *Tupinoma erratica*, in a sandy place near Bournemouth.

This insect has often been compared with *A. canaliculatus*, but in general appearance is very different; in the catalogue of Heyden, Reitter, and Weise it is associated with the latter insect under the genus *Astilbus*; although it certainly seems hardly to belong to the genus *Myrmedonia* proper, yet, except perhaps in one or two points, it appears to be quite as far removed from *Astilbus*: it may perhaps be made the type of a separate genus altogether.

ASTILBUS, Dillwyn.

The old name of *Astilbus* has lately been revived in place of the name *Drusilla* (which is preoccupied for a genus of Lepidoptera) for the small genus containing the common and well-known *Myrmedonia canaliculata*, and three or four other species which are not found in Britain: the superficial characteristics are the narrower form, more projecting head, longer thorax, and very short elytra, the latter being distinctly shorter than the thorax, which is evidently longer than broad; the legs are more slender, and have the intermediate and posterior tarsi longer; the species are wingless.

A. canaliculatus, F. (*Myrmedonia canaliculata*, Er., *Drusilla canaliculata*, Mann.). Elongate and narrow, of a chestnut or reddish-chestnut colour, with the head and more or less of the hind body before apex black; head large, nearly as broad as thorax; antennæ long, gradually and slightly thickened towards apex, brownish, with the basal joints testaceous, penultimate joints hardly transverse; thorax plainly longer than broad, broadly impressed longitudinally in male and channelled in centre of impression, channelled in female, plainly narrower at base than base of elytra, closely and moderately strongly punctured; elytra very transverse, shorter than thorax, widest at apex, rather strongly and somewhat rugosely punctured; hind body with sides somewhat rounded, narrowed at base, finely punctured in front, almost smooth behind; legs long and slender, testaceous, posterior tarsi almost as long as tibiæ. L. 4 mm.

Male with the dorsal plate of seventh segment of hind body rather broadly emarginate in a semicircle, with the emargination finely denticulate, and ending on each side in a small sharp and projecting tooth.

In runs of *Formica flava* and other ants, also under stones, in haystack refuse, decaying sea-weed, moss, &c.; abundant in England, especially in the Midlands and the South; Scotland, scarce, Lowlands, Forth, Solway, and Clyde districts; Ireland, Belfast, Armagh, and Dublin, and probably generally distributed.

CALLICERUS, Gravenhorst.

This genus contains a few species found in Europe, and one from

Syria; it is closely connected with *Homalota*, but has more the facies of *Calodera*; Mulsant and Rey place it at the head of their fourth division of the Myrmédoniaires, the Homalotates; our two species occur in moss, haystack refuse, in sandpits, near banks of rivers, &c.

Length $2\frac{2}{3}$ mm.; last joint of antennæ very long, tenth

much longer than ninth *C. obscurus*, Grav.

Length $4-4\frac{1}{2}$ mm.; last joint of antennæ moderately long,

tenth about equal to ninth *C. rigidicornis*, Er.

C. obscurus, Grav. Dull black or pitchy brown with the elytra lighter, finely pubescent, head rather large nearly as broad as thorax, antennæ very long, reaching nearly to the apex of the elytra, rather more thickened in the female than in the male; the latter sex has the tenth joint very long, and joints 6-9 moderately transverse; in the former the tenth is less elongate, and joints 6-9 more strongly transverse; the last joint is also longer in the male than in the female; thorax about as long as broad, plainly narrower than elytra, obsoletely punctured; elytra a little longer than thorax, thickly punctured; hind body parallel-sided until near apex, finely punctured towards base, almost smooth behind; legs lighter or darker testaceous. L. $2\frac{2}{3}$ mm.

The sexual differences of the hind body in this species are slight, but the sexes differ very much in general appearance, the females that I have seen appearing to be somewhat broader and stouter with broader and squarer thorax and elytra, and of a browner colour; the antennæ also differ considerably, as will be seen from the above description; in fact they might be taken for different species.

In moss, haystack refuse, near rivers, in sandpits, &c.; local, but not uncommon in some localities, and widely distributed; London district, rather common; Tonbridge; Hastings; Brighton; Lewes; Knowle, near Birmingham; Lincoln; Scarborough; Manchester; Liverpool; Northumberland district; Scotland, local, Lowlands, Forth and Solway districts; Ireland, Portmarnock and near Belfast; it is usually found most plentifully in early spring: Haliday remarks that he took it abundantly at Holywood, Belfast, under the shelter of furze-bushes on the fresh grass of sunny banks at this time of year.

C. rigidicornis, Er. (*♂ unicarinatus*, Fairm.). Much larger than the preceding species, and very different from it in general appearance; pitchy black, rather shining, with the elytra chestnut-brown and the apex of hind body testaceous; head, as a rule, distinctly narrower than thorax, antennæ long, plainly longer than head and thorax, gradually thickened towards apex, entirely reddish testaceous, penultimate joints not transverse, tenth about equal to ninth, eleventh as long as the two preceding; thorax subquadrate, a little broader than long, slightly narrower at base than elytra, thickly and somewhat asperately punctured; elytra about as long as, or a little longer than, thorax, and more plainly sculptured; hind body thickly and finely punctured in front, almost smooth behind; legs testaceous. L. $4-4\frac{1}{2}$ mm.

Male with the seventh segment of hind body furnished with a strong raised tubercle in the middle of its posterior margin.

In sandpits, and also running on the mud by the side of small ditches and streams; occasionally found under hedge rubbish, bones, &c.; usually considered rare, but it is widely distributed; Kent and Surrey and the London district generally, Chatham, Lewisham, Esher, Shirley, Reigate, Upnor, Dulwich, Colney Hatch, Chobham, Wimbledon, Charlton, Weybridge, West Wickham; Harwich; Yardley and Knowle near Birmingham; Worcester; Liverpool; Northumberland district, very rare; Scotland, very rare, Forth and Clyde districts.

THAMIARÆA, Thomson.

This genus contains two very distinct European species, which are found exclusively in burrows of *Cossus ligniperda*: besides the separation of the intermediate coxæ, they are distinguished by having the hind body more or less narrowed both at base and apex and so slightly ovate, by the strongly transverse thorax of which the posterior angles are blunt and rounded, and by the very strongly transverse penultimate joints of the antennæ: in the latest European catalogue this and the succeeding genus are placed between *Thiasophila* and *Microglossa*; in this way they are widely separated from *Homalota*, as *Aleochara*, *Myrmedonia*, *Dinarda*, &c., are intercalated between them and the latter genus; our two species of *Thamiaræa* certainly have the facies of true *Aleocharæ*; Dr. Sharp has lately described two or three other species from Central America, which differ somewhat from our species in general appearance.

T. cinnamomea, Grav. This is one of the largest species of the genus, and is more like a *Myrmedonia* or *Aleochara* than a *Homalota*; broad and robust, cinnamon-brown, with the abdomen black and shining, the hind margins of the segments being often brownish; front parts dull; head broad and short, much narrower than thorax, with eyes prominent, finely and not closely punctured; antennæ pitchy, with base testaceous, stout and rather short, third joint longer than second, fourth rather small, fifth much broader than fourth, 5-10 strongly transverse; thorax twice as long as broad, with sides rounded, narrower in front than behind, finely and rather closely punctured; elytra transverse, longer than thorax, finely and somewhat closely punctured; hind body rather ovate, narrowed in front and behind, but not very noticeably, with basal segments finely and sparingly punctured, the others impunctate; legs yellow or reddish yellow. L. 4-4½ mm.

Male with the seventh abdominal segment furnished on middle of disc with a projecting longitudinal keel, "lateral margin projecting on each side as a short, pointed, rather curved spine; between these two spines the middle part of hind margin is much produced, and the apex in the middle has a small notch" (Sharp); Mulsant and Rey in describing these characters speak of the segment as armed with four teeth, the outer spiniform and a little curved inside, the inner tuberculiform,

“rapprochées au sommet d’une lame angulaire plus prolongée que les dents latérales.”

The suture of the elytra in the male is elevated into a distinct carina terminating abruptly at scutellum; a variety occurs in which this sutural carina, and also that on seventh segment of hind body are wanting.

At the exuding frass of *Cossus*-infected trees; not uncommon in the London district, and the Southern and Midland counties; rarer further north; Manchester, Dunham Park, not uncommon; not recorded from the Northumberland district; Scotland, rare, Moray district only.

T. hospita, Maerk. (*castanea*, Aubé, *australis*, Rey. This species closely resembles the preceding in colour, but is much smaller, and has the hind body much more plainly punctured; with this exception the punctuation does not differ much, and the structure is much the same; the antennæ are stout, yellowish, third joint longer than second, fourth about as stout as third, as long as broad, 5–10 each a little broader than the preceding, fifth slightly, 6–10 strongly, transverse; thorax with an indistinct longitudinal channel; hind body with segments 2–4 evenly and pretty closely and finely punctured, fifth more sparingly punctured, sixth impunctate, or nearly so; legs yellowish. L. $3\frac{1}{2}$ mm.

Male with the seventh segment of hind body furnished with an obtuse tubercle on its upper surface towards middle of base, apex produced in middle, in the form of two teeth close to one another, hind margin also produced on either side in the form of two rather blunt teeth or projections.

In burrows of *Cossus ligniperda* like the preceding, often occurring in company with it; local; Sheerness; Sittingbourne; Shirley; Caterham; Dulwich; New Forest; Holecombe, Devon; Dean Forest; Repton; Scarborough; Manchester; not recorded from the northern counties or from Scotland.

NOTOTHECTA, Thomson.

This genus differs from *Thamiaræa* in having the hinder angles of the thorax well marked, and the first joint of the intermediate tarsi plainly shorter than the second; the elytra also are furnished with a plain raised fold at the apex towards the posterior external angle: the species are found exclusively in ants’ nests; three are found in Britain, one of which is placed by Thomson in his sub-genus *Lyprocorrhe*; this, however, can hardly be separated from *Notothecta*, and together with *Kraatzia*, Muls. and Rey, is usually included under that genus.

N. flavipes, Grav. Rufo-piceous, with the head and central portion of hind body blackish; rather a broad and robust species; head black and shining, broad and short, finely and indistinctly punctured; antennæ pitchy, pale at base, rather long, scarcely thickened towards apex, joints 2–3 about equal in length, rather long, 4–10 not differing much in length, fourth rather longer than broad, 5–6 hardly, 7–10 slightly,

transverse, eleventh long, longer than the two preceding, often light-coloured ; thorax more or less pitchy, about as broad as elytra, twice as broad as long, narrowed in front, sinuate near exterior angles which are distinct, closely and rather plainly punctured, with an indistinct impression before scutellum ; elytra rather longer than thorax, very transverse, somewhat rugosely punctured ; hind body shining, segments 2-4 sparingly punctured, 5-6 impunctate, sides and apex with long exerted setæ ; legs reddish yellow. L. $3\frac{1}{3}$ mm.

Male with the hind margin of dorsal plate of seventh segment of hind body distinctly emarginate in middle.

In nests of *Formica rufa* ; widely distributed and common from Yorkshire southwards ; not recorded from the Northumberland district ; Scotland, local, Tay, Dee, and Moray districts.

N. confusa, Maerk. Very like the preceding, but smaller, and a little more shining ; the antennæ are rather thicker, and have joints 4-10 plainly shorter and more transverse ; the sides of the thorax are a little less rounded ; moreover, the hind body is more closely punctured, the base of the fifth segment being distinctly punctured ; the sexual characters are much the same as in *N. flavipes*. L. 3 mm.

Rare ; in nests of *Formica fuliginosa* ; Mickleham (Champion), Tilgate, Charlton, Birdbrook (Power and F. Smith) ; in the latter locality Dr. Power has found the species somewhat plentifully.

N. anceps, Er. (*Lyprocorrhe anceps*, Thoms., *angularis*, Heer.). Very different from the two preceding species ; fuscous black with the front parts dull and very distinctly and closely punctured, hind body rather shining, yellowish at apex ; pubescence short, thick, and fine ; head rather broad and short ; antennæ pitchy, paler at base, rather long and slender and scarcely thickened towards apex, joints 2-3 of nearly equal length, 4-10 differing little in length, 5-10 scarcely transverse ; thorax at base as broad as elytra, nearly twice as broad as long, narrowed in front, posterior angles distinct and not rounded, disc flat, and channelled longitudinally ; elytra rather short, transverse, rather flat, somewhat rugosely punctured ; hind body narrowed behind, finely punctured throughout. L. $2\frac{1}{2}$ mm.

Male with the ventral plate of the seventh segment of hind body narrower and more produced than in female.

In nests of *Formica rufa* ; widely distributed and common in the Midlands and the South ; Scarborough district ; not recorded apparently from the extreme northern counties of England, but probably occurs ; Scotland, local, Tay, Dee, and Moray districts.

ALIANTA, Thomson.

This genus is here understood as including *Alianta*, Thoms., *Discerota*, Muls. et Rey, and *Heterota*, Rey, which, together with the two preceding genera, are separated from *Homalota* proper by the evident separation of

the intermediate coxæ: there are only two British species, *A. incana*, which bears a very close resemblance to *H. nigella*, and is generally placed in close connexion with that species, and *A. plumbea*, which has hitherto been placed in our lists between *Gnypeta cærulea* and *labilis* and *H. fallax*.

A. incana, Er. Black, rather dull, finely and somewhat thickly pubescent; head narrower than thorax, sometimes impressed in middle, punctuation rather close but indistinct; antennæ short, thickened towards apex, testaceous with apical joints darker, first joint longer than second or third, third a little shorter and narrower than second, fourth as long as broad, 5–10 gradually broader, 7–10 distinctly transverse, eleventh twice as long as tenth; thorax much narrower than elytra, slightly narrowed behind, broader than long, punctuation indistinct, sometimes, but not always impressed or feebly channelled in front of scutellum; elytra one-half longer than thorax, sculpture distinct, granulate; hind body with basal segments closely and distinctly punctured, segments 4–7 finely granulated; legs pitchy, knees and tarsi paler. L. 3 mm.

Male with segments 4–6 of hind body rather shining, seventh segment with a row of four large indistinct tubercles just before apex, the space before these thickly granulate; female with segments 4–6 not more shining than the others, seventh segment with four tubercles as in male, but these are much more indistinct, and the segment is duller.

Marshy places, in stems of reeds and in the axils of the leaves of water plants; also found in moss, flood refuse, &c., at the edges of pools; local; formerly common at Notting Hill and Hammersmith Marshes; Sheerness, Strood, Lee, Merton, Mickleham, Dagenham, Sheppy; The Holt, Farnham; Tonbridge; Glanvilles Wotton; Devonshire; Coleshill, Sutton Park, and Knowle, near Birmingham; Horning Fen and other fen districts; not found in the north of England or Scotland; according to Mulsant and Rey it is rather rare in France, and occurs under sea-weed on the shore; it somewhat resembles the next species, but is more linear, and has the first joint of the intermediate and posterior tarsi shorter; superficially it is extremely like *H. nigella*, but is considerably larger than that insect.

A. plumbea, Wat. (*Heterota plumbea*, Muls. et Rey). Leaden black, dull, hind body more shining, very closely and finely punctured and pubescent; head a little narrower than thorax, narrowed behind eyes, obscurely impressed on vertex; antennæ moderately long, only slightly thickened towards apex, pitchy, with first joint usually reddish, third joint plainly shorter than second, fourth than third, 4–10 not differing much in length, but slightly in breadth, so that the last joints are somewhat transverse, eleventh stout about twice as long as tenth; thorax subquadrate, much narrower than elytra, slightly narrowed behind, with a broad impression, often more or less obsolete, before base; elytra rather broader than long, considerably longer than thorax; hind body closely and finely punctured except at extreme base of each segment; legs fuscous testaceous, tarsi testaceous, short and stout. L. 3 mm.

Male with the seventh segment more rounded at apex above and below than in female according to Dr. Sharp, less rounded according to Mulsant and Rey: Dr. Sharp (l. c. p. 115) points out the uncertainty as regards the sexes, and says that as the antennæ are longer in the specimens with the apex of seventh segment slightly emarginate, they may prove to be the males.

A coast species; common in the south under sea-weed and among shingle; Dover, Folkestone, Weymouth, Shorcham, Isle of Wight, Exmouth, Falmouth; I have found it commonly at Ventnor on warm days in April, flying and settling on the rocks and pebbles. Bold records it as "rare, sea-coast near Hartley, Northumberland district," but this may be in error, as there is no other northern record, and it does not occur in Scotland.

HOMALOTA, Mannerheim.

This very large genus comprises 600 or 700 species already described from various parts of the world, 200 of these being found in Europe; there are no doubt a very large number of others yet unknown; Dr. Sharp has quite recently described nearly fifty new species from Central America: the difficulty of dealing with so large a genus is obvious even where the species present some striking characteristics, but the Homalotæ, taken as a whole, are so very closely allied that it is often extremely hard to separate the species, even those found in different parts of the world; for instance *H. spergula* and *H. despecta* found in Guatemala and the Volcan de Chiriqui at a height respectively of 3000 and 4000-6000 ft. are exceedingly like our common British *H. nigra*. Mannerheim's type of the genus was *H. plana*; this is now considered a separate genus—*Epipeda*, Mulsant and Rey; some authors (as C. G. Thomson) therefore apply the name *Homalota* to *H. plana* alone, and break up the rest of the species into numerous other genera: Thomson establishes about thirty different genera on the various individuals of the genus, but Mulsant and Rey, if we include their sub-genera, all of which bear distinct names, bring the number up to between fifty and sixty; these latter authors devote nearly 900 pages of their "Histoire Naturelle de Coléoptères de France, Brévipennes" to the Homalota group; their work on the various divisions, like Thomson's, is most valuable, but is exceedingly confusing, and it is obvious that many of the genera are founded on such slight distinctions that, if adopted, they must ultimately be again fused with others. By far the best work on Homalotæ that has yet appeared is the Revision of the British species by Dr. Sharp, published in the Entomological Society's Transactions for 1869: if we follow his arrangement we may with patient working determine almost any British Homalota, but the task, always a hard one, is rendered almost impossible by the minute subdivision into genera and sub-genera, which in many cases are of extremely doubtful value; Dr. Sharp's system has therefore been in the main adopted in this work; I have, however, after consultation with

Dr. Sharp, divided off those species that have the intermediate coxæ separated by a plain interval; these form the genera *Notothecta*, *Thamiaræa*, and *Alianta*, which have already been noticed. *Gnypeta* (*H. labilis* and *cærulea*) and *Brachida* (*H. notha*) have for some time been considered as distinct; to the description of each of the species of *Homalota* given below are added the names of the genera adopted by Thomson and Mulsant and Rey, in order that any student of the group may at once be able to refer to them in case he feels inclined to do so.

The *Homalotæ* are distinguished from most of the closely allied genera by the shorter first joint of the posterior tarsi, which is in most cases about equal to, or only slightly longer than the second, and, as an almost invariable rule, is shorter than the second and third together; in fact there appear to be only two exceptions, *H. gregaria*, in which the first joint is about equal to the second and third together, and *H. pygmæa*, in which it is equal to or even longer than these joints. In the former species, also, the ligula is entire instead of being bifid, and this character together with the structure of the tarsi seems quite sufficient to warrant the establishment of a separate genus for the insect: I would therefore propose for it the name of *Glossola* provisionally, the genus *Disopora* under which it is placed by Mulsant and Rey including several other species that are very different; as, however, *H. pygmæa* presents the same peculiarity of the tarsi, and the question does not seem capable of being thoroughly settled in the present state of our knowledge of the genus, it seems the best course to place *H. gregaria* after the sub-genus *Disopora*, but in no particular group or section.

Students of the group will probably find a difficulty in the fact (which has been noticed in the introduction) that the penultimate and anal segments of the hind body are spoken of by Mulsant and Rey as the fifth and sixth segments, and by Dr. Sharp as the sixth and seventh segments respectively; as a matter of fact there is truly an additional and more or less concealed segment at the base of the hind body, as demonstrated by Kraatz, and, accordingly as this is reckoned or not, the number of segments will of course appear different; in the succeeding descriptions the anal segment is counted as the seventh.

The species of *Homalota* are found in various localities, in hot-beds, dung-heaps, under moss in woods, in fungi, under sea-weed on the shore, in dead birds and animals, at roots of grass, at sap, &c.; one or two species, besides those now included in the genus *Notothecta*, are found in ants' nests, and a few occur only under the bark of trees; a large number may be obtained by sweeping herbage in damp localities, especially about sunset on summer evenings.

The larva of *H. celata* is described by Perris, Ann. Fr. 1853, p. 561, Pl. 17, Fig. 9-15, as exceedingly like that of *Phlæopora reptans*, but differing in having the eighth segment of abdomen quadrate and not prolonged over the ninth, and by the longer anal appendage, and longer cerci, of which the first joint is equal in length to the anal appendage, and the second joint very much shorter than the first.

It is found in the galleries of *Hylurgus*, &c.; the pupa is exactly like that of *Phlæopora*.

The larvæ and pupæ of the smaller Aleocharinæ appear to be very closely allied to one another, and to differ chiefly in the characters of the last abdominal segments and appendages; the mouth organs also appear to afford important points of distinction in some cases; very little, however, is really known about them.

As experience shows that detailed tables are of very little use in this genus, they have been omitted; any student, however, who desires to consult such tables is referred to Mulsant and Rey's *Brévipennes, Aléochariens*, 1873-1875.

The following are the sections into which the British species, as they stand at present, may be divided:—

- I. Hind body parallel; thorax quadrate (about as broad as long); the six penultimate joints of the antennæ longer than broad, or nearly as long as broad.
- II. Hind body parallel; thorax quadrate or subquadrate; six penultimate joints of the antennæ transverse, but not very strongly so.
- III. Hind body parallel; thorax quadrate or subquadrate; six penultimate joints of the antennæ strongly transverse.
- IV. Hind body parallel; thorax moderately transverse, its sides evenly rounded.
- V. Hind body parallel; thorax distinctly or strongly transverse; penultimate joints of the antennæ not, or only moderately, transverse.
- VI. Hind body parallel; thorax strongly transverse; penultimate joints of the antennæ strongly transverse.
- VII. Hind body more or less distinctly narrowed; hinder angles of thorax rounded.

SECTION I.

Hind body parallel; thorax quadrate (about as broad as long), the six penultimate joints of the antennæ longer than broad, or nearly as long as broad.

This section may be divided into the following groups:—

1. Hind body with the sixth segment nearly impunctate; male with a tubercle or keel on the upper side of the sixth segment (p. 67).
2. Small delicate species, with all the segments of the hind body punctured; antennæ not at all thickened towards the apex (p. 72).
3. Species of moderate size, with all the segments of the hind body punctured, and the antennæ slightly thickened towards the apex (p. 74).
4. Male without tubercle or keel on the sixth segment; hind body with the sixth segment nearly impunctate, the others rather closely punctured, the fifth often more than the fourth (p. 76).
5. Hind body with the basal segments sparingly punctured, the apical ones nearly impunctate (p. 79).

GROUP 1.

This group contains the following species: *H. currax*, *languida* and *var. longicollis*, *insecta*, *pavens* (= *sulcifrons*), *Eichoffi*, *cambrica*, *planifrons*; of these the first four are larger species (4 mm. or nearly), and the last three smaller (3 mm. or less); the *var. longicollis* of *languida* is also 3 mm. in length. According to Dr. Sharp these species are all found on river banks with the exception of *H. languida* and

pavens, which sometimes occur in marshes; one or two species, however, appear not to be exclusively confined to damp localities.

H. currax, Kr. (*Disopora currax*, Muls. et Rey). Depressed, rather broad, fuscous black, somewhat shining, with the elytra rather lighter, finely and densely pubescent; head rather broad, but narrower than thorax with a distinct longitudinal impression, very finely punctured; antennæ long and slender (as long as head, thorax, and half elytra), fuscous brown with the basal joints pitchy, all the joints longer than broad, 2-3 of about equal length, from 4-10 each slightly shorter than the preceding, eleventh about half as long again as tenth; thorax subquadrate, narrower than elytra, with sides rounded in front and distinctly narrowed behind middle, together with elytra very finely and closely punctured, with a fovea at base and a more or less distinct longitudinal channel in middle; elytra longer than thorax, together as long as broad; hind body with segments 2-5 distinctly punctured, sixth segment almost smooth; legs dark testaceous. L. 4 mm.

Male with the sixth segment of hind body furnished on the upper surface with a strong pointed tubercle, hind margin of seventh with four small teeth, the two middle ones being placed very near together.

On the banks of rivers and streams; not uncommon, although local, in the north of England; also found by Mr. Blatch at Bewdley and Church Stretton; Scotland, local, Forth, Solway, and Clyde districts; Ireland, Bray, co. Wicklow (Champion).

As Dr. Sharp remarks *H. hygrotopora* much resembles this species, but it may at once be distinguished by the much shorter and stouter antennæ, and the fact that the thorax is not narrowed behind.

H. languida, Er. (*Disopora languida*, Thoms.). Elongate, sub-depressed, finely and rather thickly pubescent, very finely punctured, fuscous black or fuscous, with the elytra and often the thorax lighter, and the margins of the segments of hind body testaceous; head a little narrower than thorax; antennæ yellow, rather long and slender and scarcely thickened towards apex, joints 1-3 elongate of about equal length, third about half as long again as fourth, 4-10 each a little shorter than the preceding, but none transverse, eleventh about half as long again as tenth, thorax subquadrate narrower than elytra with the sides nearly straight, with an impression at base; elytra a little longer than thorax, almost square, depressed; hind body very thickly and finely punctured, with sixth segment almost smooth; legs yellow. L. $3\frac{1}{2}$ -4 mm.

Male with a distinct tubercle on the middle of sixth segment of hind body, hind margin of seventh furnished with six small, but distinct teeth, of which the inner four are placed rather close together.

Marshy places, rare; Hammersmith Marshes; Weybridge, Bromley, and other localities near London; it has also been recorded from Glanvilles Wotton, Dorset, and by Mr. Saunders from Worthing.

The *v. longicollis* is much smaller and narrower; the antennæ are said to have the fourth to the tenth joints less elongate, but the difference is

hardly, if at all apparent, in Dr. Sharp's typical specimens; the colour is often almost entirely testaceous, but this too is sometimes the case with the type form. It is the *H. longicollis* of Mulsant and Rey, who consider it a separate species. L. 3 mm.

Very rare; found in Claygate Lane, Esher, and one or two other localities in the London district. Tonbridge (Horner).

H. insecta, Thoms. (*Discopora insecta*, Muls. et Rey, *Aloconota insecta*, Thoms.). Fuscous or fusco-piceous with the elytra lighter, finely punctured and pubescent; head a little narrower than thorax with a very distinct longitudinal impression on vertex; antennæ pitchy testaceous with the base paler, rather stout, and evidently, though not strongly thickened towards apex, joints 1-3 elongate of about equal length, 4-9 each of about equal length, but each thicker than the preceding, so that the ninth appears shorter than fourth, tenth very slightly transverse, eleventh oblong ovate about twice as long as tenth; thorax subquadrate with sides rounded in front and slightly narrowed from middle to base, with a distinct central channel (in mature specimens); elytra a little longer than thorax, narrower at base than apex; hind body with segments 2-5 evenly and finely punctured, sixth segment shining and smooth, extremity of seventh yellowish; legs yellow. L. 4 mm.

Male with a distinct tubercle in middle of sixth segment, and with the apex of seventh furnished with four small indistinct teeth, sometimes obsolete.

At roots of grass in marshy places; also on banks of rivers and lochs; local and, as a rule, uncommon; Putney (banks of Thames); Tonbridge; Bewdley; Matlock; Hightown, Liverpool; Manchester; Sawley; banks of the Irthing, Cumberland; Northumberland district; Caernarvon; Scotland, local, Tay, Dee, Solway.

This species is closely allied to *H. pavens*, but is a little larger with the head and thorax more shining and more sparingly punctured, the latter being more strongly channelled; the antennæ also are not so much thickened towards apex and the joints are longer than in *H. pavens*, and the furrow also on the vertex of head is much more distinct.

H. pavens, Er. (*sulcifrons*, Steph., *Disopora pavens*, Muls. et Rey, *Aloconota lissonura*, Thoms.). Elongate and rather linear, finely and thickly punctured and pubescent, rather shining, pitchy black with the elytra brownish testaceous; head a little narrower than thorax with an obsolete fovea in front; antennæ pitchy testaceous with base pale, rather long and stout, joints 1-3 of about equal length, 4-5 oblong, 7-10 slightly transverse; thorax subquadrate with sides slightly rounded in front and narrowed from middle towards base with a more or less obsolete central channel; elytra scarcely longer than thorax, not so long as broad, with punctuation not quite so close as on thorax, hind body with segments 2-5 thickly and finely punctured, sixth almost impunctate; legs yellow. L. $3\frac{1}{2}$ -4 mm.

Male with a long raised tubercle on sixth segment, hind margin of seventh furnished with four indistinct teeth.

Marshy places, especially on river banks; also in woods; it occurs under stones, dead leaves, and vegetable refuse; it is never common, but the male is much rarer than the female. Mickleham, Walton-on-Thames, Shirley near Croydon; Tonbridge; Brighton; Isle of Wight; North Devon; Nettlecomb, Somerset; Sunbury; Burford; Smallheath, near Birmingham (under bones); Matlock (moss in waterfall); Scarborough; Stretford, near Manchester; Whalley, Lancashire; Northumberland district. Scotland, scarce, Forth, Tay, and Solway districts (Nithsdale, Edinburgh, Rannoch, &c.).

H. Eichoffi, Scriba (*ægyptiaca*, Mots.). A delicate and fragile species, somewhat depressed, and shining, pitchy, with the elytra paler; head large, a little narrower than thorax, shining, narrowed in front, together with thorax very finely punctured; antennæ pitchy testaceous with base lighter, long and slender, slightly thickened towards apex, joints 1-3 elongate, third not so long as second, fifth longer than fourth, 5-10 not differing much in length, eleventh oval, half as long again as tenth; thorax subquadrate, with sides a little narrowed towards base with a short channel or impression in front of scutellum; elytra scarcely as long as broad, hardly so finely punctured as thorax; hind body slightly narrowed towards apex, with segments 2-4 finely and rather sparingly punctured, fifth not so thickly punctured, sixth smooth; legs yellow. L. 3mm.

Male with a pointed tubercle on sixth segment, posterior margin of seventh furnished with four teeth, the two in middle close together and distinct, the two outside more or less obsolete.

Very rare; Walton-on-Thames (Champion); Tonbridge (Horner); Scotland, Tay and Solway—Rannoch (Sharp and Crotch)—flood refuse, banks of Nith (Sharp).

This species very closely resembles the succeeding, but is distinguished by being rather larger and more shining, with a larger head, which is more produced in front; the antennæ too are stouter, and the elytra shorter and paler.

H. cambrica, Woll. (*velox*, Kr., *Disopora velox*, Muls. et Rey). Rather depressed, not very shining, very finely and thickly pubescent; head subquadrate, a little narrower than the thorax, finely punctured, black or fuscous black, with elytra pitchy brown or chestnut-brown; antennæ long and slender, fuscous with light base, joints 1-3 rather elongate, 4-7 slightly oblong, 8-10 nearly equal about as long as broad, eleventh oblong about half as long again as tenth; thorax subquadrate, scarcely narrowed behind, a little narrower than elytra, very thickly and finely punctured; elytra half as long again as thorax very finely punctured; hind body rather more shining, with segments 2-5 not very thickly punctured, sixth nearly impunctate; legs long and slender, yellow. L. $2\frac{2}{3}$ mm.

Male with a large raised tubercle on the middle of sixth segment, apex of seventh segment with four teeth, the two outer ones very obsolete.

Very local; apparently not found in the south of England; Bewdley Forest; Wales; Hartlepool; Northumberland district. Scotland, common among shingle on banks of rivers, Solway, Forth, Tay, and Moray districts. Ireland. Bray, co. Wicklow, (Champion).

H. planifrons, Wat. Somewhat depressed and shining, thickly pubescent, black, with the elytra and sometimes thorax and head more or less fuscous brown; head large nearly as broad as thorax, subtriangular, narrowed in front with a distinct channel on the upper side, rather sparingly punctured; antennæ rather stout with joints 1–3 of about equal length, fourth shorter than fifth, 5–10 nearly equal, eleventh ovate half as long again as tenth; thorax subquadrate, rather thickly and finely punctured, with a central longitudinal depression; elytra rather longer than thorax finely and somewhat sparingly punctured; hind body with segments 2–4 finely but not thickly punctured, fifth more sparingly punctured, sixth smooth; legs testaceous. L. 3 mm.

Male with a distinct tubercle on middle of sixth segment, posterior margin of seventh with four teeth, the inner two placed close together in middle.

Very rare; sandpits, &c.; Forest Hill, London (Champion); Shirley, near Croydon (Rye); Charlton pit, Kent; Hayling Island (E. Saunders); Watermouth, North Devon (Power).

The shape of the head will distinguish this species from all its allies except *H. Eichoffi*, from which it may at once be separated by its more robust form, thicker antennæ, and less dense punctuation.

H. gregaria, Er. (*Disopora gregaria*, Muls. et Rey, *Aloconota immunita*, Thoms., *Glossola gregaria*, Fowler). Black or pitch-black, not very shining, with the elytra pitchy brown; head narrower than thorax very dull, extremely finely punctured; antennæ obscurely ferruginous or pitchy, rather stout compared with the preceding species, joints 2–3 rather long, equal, from 4–10 each a little shorter than the preceding, eleventh about twice as long as tenth; thorax subquadrate, not narrowed behind, very finely and closely punctured, with a more or less distinct impression at base; elytra broader and a little longer than thorax, densely and finely punctured; hind body with segments 2–5 finely and evenly punctured, sixth segment almost smooth; legs yellow, femora pitchy; posterior tarsi long and slender with first joint elongate nearly, if not quite, as long as the next two together. L. $2\frac{2}{3}$ –3 mm.

Male with no tubercle on sixth segment of hind body, with the upper and under plates of seventh segment narrower than in female.

Very common throughout the country; found in flood refuse, haystack refuse, decaying sea-weed, moss, at roots of grass, &c.

As mentioned above, the elongate first joint of posterior tarsi and the entire ligula appear to separate this species from the other Homalotæ; if retained with them its present position seems the best for it, but it

cannot be classed with Group 1, as the male has no tubercle on the sixth abdominal segment.

GROUP 2.

The species belonging to this group are distinguished from the preceding by their smaller size, by having the sixth segment of the hind body punctured as well as the others, and to a certain extent by the fact that their antennæ are not at all thickened towards apex.

H. eximia, Sharp (*Thinæcia merita*, Muls. et Rey). Linear and depressed, very finely and thickly pubescent, fuscous or pitchy brown, dull, very finely and densely punctured; antennæ, mouth, legs, and apex of hind body clear testaceous; head scarcely narrower than thorax; antennæ slender and elongate, each joint very distinctly longer than broad, third joint a little shorter than second, fifth plainly longer than fourth, 5–11 differing only slightly in length and breadth; thorax a little narrower than elytra, scarcely as long as broad, very slightly narrowed behind, with a very distinct central channel, elytra considerably longer than thorax; hind body not so densely punctured as thorax and elytra; legs testaceous, tarsi rather short and stout. L. 2 mm.

Male with the ventral plate of seventh segment of hind body very much produced, very broad, and truncate, and plainly visible from above.

Very rare; Snowdon (Brewer); Tonbridge (Horner), six specimens 1884; Bewdley Forest, Worcestershire (Blatch), 1886; Scotland, Solway, Tweed, and Forth districts (Peebles, banks of Nith, and of Almond near Edinburgh).

H. fragilis, Kr. (*Thinæcia fragilis*, Muls. et Rey, *Hydrosmeeta fragilis*, Thoms.). Rather closely allied to the preceding, but darker in colour, with the antennæ much shorter and the joints shorter in proportion; the eleventh joint instead of being equal to the tenth is half as long again; the head is somewhat narrower behind the eyes, and the thorax is not so distinctly channelled; in the male the under plate of the seventh segment of hind body is rounded and not truncate, and in the female it is gently emarginate in the middle; sometimes the thorax has a broad longitudinal depression in middle instead of a channel. L. 2 mm.

Apparently not found except in Scotland, but stated by Dr. Sharp to be "very abundant on the banks of rivers and streams everywhere" in that country. Ireland, Bray, Co. Wicklow (Champion).

H. longula, Heer. (*thinobioides*, Kr.?, *Thinæcia thinobioides*, Muls. et Rey, = *T. callida*, Muls. et Rey, *Hydrosmeeta longula*, Thoms.), Very like *H. fragilis*, but differs by having the abdomen much more densely and finely punctured, and by its darker colour; head a little narrower than thorax, almost square, thickly and very finely punctured; antennæ pitchy with all the joints longer than broad, second joint longer than third, third longer than fourth, 5–10 nearly equal, eleventh slightly longer than tenth; in *H. fragilis* joints two and three are about equal, and the eleventh is much more evidently longer than tenth; thorax

rather longer than in *H. fragilis*, subquadrate ; elytra considerably longer than thorax ; whole surface of hind body very densely and finely punctured. L. 2 mm.

Sexual differences very slight and hardly appreciable.

Rare ; on the banks of rivers, &c., in shingle and damp sand ; formerly taken by Mr. Wollaston at Slapton Ley, Devonshire ; has also occurred at Tonbridge and in the New Forest. Scotland rare, Tweed and Solway districts (banks of a tributary of the Nith near Dumfries, and of the river Bowmont at Yetholm, Kelso).

H. delicatula, Sharp (*Thinaccia simillima*, Muls. et Rey). Very small, linear and depressed, very finely and densely pubescent, pitchy-black or fuscous with the elytra brownish ; head subquadrate, scarcely narrower than thorax ; antennæ long and slender, testaceous or slightly pitchy, the length of each joint distinctly greater than the breadth, second joint longer than third, third than fourth, 5–10 nearly equal, eleventh plainly longer than tenth ; thorax about as long as broad, densely and obsoletely punctured, slightly narrowed behind, in some specimens broadly channelled, in others without channel ; elytra plainly longer than thorax, very thickly and finely punctured ; hind body with all the segments above equally thickly and very finely punctured ; legs pale testaceous. L. $1\frac{1}{2}$ mm.

Sexual differences very slight, hardly appreciable.

On the banks of rivers ; very rare, and only found in Scotland ; banks of Nith, Solway district, at Thornhill (Sharp) ; Rannoch (Crotch).

From *H. longula*, which it considerably resembles, this species may be distinguished by its much smaller size and paler colour.

H. subtilissima, Kr. (*Thinaccia subtilissima*, Muls. et Rey). A very small species fuscous or pitchy-brown with the elytra and thorax lighter, and the mouth, antennæ, legs, and apex of abdomen testaceous ; head large, subquadrate, about as wide as thorax ; antennæ rather stout but not thickened, third joint plainly shorter than second about equal to fourth, joints 4–10 about as broad as long nearly equal, eleventh plainly longer than tenth ; thorax hardly as long as broad, slightly contracted behind, with a central channel (which is sometimes obsolete), very finely punctured ; elytra lighter in colour than head and thorax, considerably longer than latter, more thickly and finely punctured than either ; hind body with the segments finely and rather closely punctured, the terminal ones with the punctuation somewhat less close than the others. L. $1\frac{1}{5}$ mm.

Male with the seventh segment more produced than female, and its hind margin rather more rounded.

Only found hitherto in Scotland, where it appears to be common on the banks of rivers ; Tweed, Solway, Forth, and Moray districts.

This species has much the appearance of *Thinobius linearis*, with which it is found in company ; from the preceding species it may easily be distinguished by its shorter and stouter antennæ, of which the joints

are shorter and thicker in proportion, by the shape of the thorax, and lighter colour.

GROUP 3.

The species belonging to this group are larger than the preceding, and have the antennæ slightly thickened towards apex; as Dr. Sharp observes, they have much the habits of some of the *Tachyusæ*; in fact two of the species that formerly belonged to the group, viz. *H. labilis* and *H. cærulea*, are now separated off under the genus *Gnypeta*, which is placed next before *Tachyusa*.

H. littorea, Sharp (*Metaxya meridionalis*, Muls. et Rey, *Atheta cyrtonota*, Thomson). Black, with the elytra brownish and apex of hind body yellowish; head distinctly narrower than thorax, obsoletely and not very closely punctured; antennæ pitchy with basal joint lighter, rather stout, a little thickened towards apex, third joint a little shorter than second, fourth than third, 4-10 becoming very gradually and almost imperceptibly shorter, eleventh ovate nearly twice as long as tenth; thorax slightly transverse, narrower than elytra, very thickly and finely punctured and pubescent; elytra longer and broader than thorax, rather broader than long, with fine punctuation and delicate pubescence; hind body black and shining with all the segments, but especially the apical ones, thickly and closely punctured; legs dirty yellow. L. $2\frac{1}{2}$ mm.

Male with the under plate of the seventh segment considerably produced, narrower than in female.

Local; a southern species; always found on the coast under tidal refuse, in muddy places, &c. Sheerness; Deal; Worthing; Littlehampton; Brighton; Lymington; Portsmouth, &c.

H. imbecilla, Wat. (*Metaxya marina*, Muls. et Rey). A very distinct species by reason of its colouring, and the development of the posterior segments of the hind body; head nearly black, rounded, narrower than thorax; antennæ long, testaceous, the length of each joint greater than its breadth, joints 1-3 elongate, three and five rather longer than four, 5-10 nearly equal, eleventh as long as the two preceding together; thorax pitchy, slightly transverse, a little narrowed behind, finely and rather thickly punctured, with an obsolete impression at base; elytra chestnut-brown, rather longer than thorax, densely and not very finely punctured; hind body somewhat coarsely pubescent, all the segments finely and thickly punctured, the sixth much longer and somewhat more sparingly punctured than the rest, pitch-black with seventh and apex of sixth segments reddish yellow; legs yellow. L. $2\frac{2}{3}$ mm.

Male with the under plate of seventh segment of hind body considerably produced and its hind margin gently rounded; in the female it is broadly and distinctly emarginate.

Local but not uncommon in the south, in decaying sea-weed on or near the coast. Chatham, Sheerness, Whitstable, Rochester; Southsea, Hythe, Shoreham, Lymington, Southwold, Littlehampton, Brighton, Falmouth; Hartlepool (W. G. Blatch).

H. luteipes, Er. (*Dilacra luteipes*, Thoms.). This species resembles *H. littorea*, but is rather larger and has the thorax longer and narrower, the antennæ longer, and the hind body a little less coarsely punctured; the colour is black with the elytra castaneous or ferruginous; head plainly narrower than thorax with a fovea on middle; antennæ pitchy, elongate, slightly thickened towards apex, joints 2-3 of equal length, fourth much shorter than third, and plainly shorter than fifth, 5-10 nearly equal in length but becoming gradually broader, all, however, longer than broad, eleventh half as long again as tenth; thorax narrower than elytra, subquadrate, not narrowed behind, closely and finely punctured, with a small fovea before scutellum; elytra rather longer than thorax, together with all the segments of hind body closely and finely punctured, the sixth not at all more sparingly than the preceding; legs yellow. L. $2\frac{2}{3}$ mm.

Male with the antennæ slightly more slender than female, and the fovea on head more distinct; seventh segment of hind body with apex rounded in male, narrowly emarginate in female.

Banks of rivers and marshy places; occasionally by sweeping; Sheerness, Croydon, Mickleham, Wimbledon, Sanderstead, Dagenham; Tonbridge; Winchester; Wicken Fen; Burwell Fen; Horning Fen; Thornton Reservoir, Leicestershire; formerly in Hammersmith Marshes.

The very dense punctuation of the hind body is the chief distinguishing mark of this species.

H. fallax, Kr. (*Dilacra fallax*, Muls. et Rey). A very peculiar species that in punctuation and pubescence resembles an *Oxypoda* rather than a *Homalota*; colour brownish black, with the elytra ferruginous, punctuation and pubescence extremely close and fine, so that the whole upper surface appears dull; head broad, almost as broad as thorax; antennæ rather long, scarcely thickened towards apex, fusco-testaceous, third joint a little shorter than second, 4-10 nearly equal in length, but gradually broader, eleventh nearly twice as long as tenth; thorax subquadrate, nearly as broad as elytra, with a shallow impression in the middle in front of base from which proceeds a more or less obsolete channel; elytra only slightly longer than thorax, rather broader than long, ferruginous brown with base darker; abdomen very dull, apex yellowish; legs reddish testaceous with the first joint of posterior tarsi nearly twice as long as second. L. $2\frac{1}{2}$ - $2\frac{2}{3}$ mm.

Male with the under plate of seventh segment much narrower and more produced than in female.

Under dead leaves, flood refuse, &c., in marshy places; rare; formerly not uncommon in Hammersmith Marshes and Notting Hill; Croydon; Mickleham (banks of Mole); Burford Bridge; Dagenham, Essex; also recorded from Devonshire.

It is very probable that this species will form the type of a distinct genus when the group has been further studied.

GROUP 4.

This group is distinguished by the absence of a tubercle on the sixth segment of hind body, coupled with the fact that the sixth segment is almost impunctate: the species have a strong resemblance *inter se*, and are chiefly found in damp places under moss, leaves, and refuse.

H. luridipennis, Mann. (*elongatula*, var., Er., *Pelurga luridipennis*, Mus. et Rey, *Atheta producta*, Thoms., *uliginosa*, Thoms.). Broad, dull, and somewhat depressed, fuscous-black, with the elytra and apex of hind body testaceous, and the hind margins of the segments of the latter more or less distinctly reddish or reddish-testaceous; head, thorax, and elytra closely and finely punctured; head broad, vertex depressed in male; antennæ rather long and stout, a little thickened towards apex, fuscous with base lighter, joints 2-3 about equal, joints 4-10 gradually very slightly shorter, the latter somewhat transverse, eleventh half as long again as tenth; thorax plainly transverse, broad, scarcely narrowed behind, with an impression at base; elytra a little broader and longer than thorax, rather broader than long; hind body with segments 2-4 rather thickly and finely punctured, fifth sparingly punctured, sixth almost impunctate; legs yellow. L. 4 mm.

Male with the upper plate of the seventh segment of hind body emarginate in middle, under plate much produced and turned upwards, female with the upper plate obsoletely emarginate at apex, under plate not produced.

Damp places, on the banks of rivers, &c.; generally distributed and not uncommon throughout England and Wales; common in Scotland.

The more robust form, very transverse thorax, and peculiar male characters will at once distinguish this species from the three or four following species, to which it bears considerable resemblance.

H. Gyllenhali, Thoms. (*londinensis*, Sharp, *Metaxyia terminalis*, Muls. et Rey, *Homalota elongatula*, var., Er., *Atheta Gyllenhali*, Thoms.). Variable in colour, as a rule coloured as the preceding species, but occasionally almost entirely rufo-testaceous; head a little less closely punctured than in the preceding species, antennæ much the same, except that the eleventh joint is shorter; thorax as long as broad very obsoletely channelled, closely and finely punctured, more often reddish brown than black; elytra longer and slightly broader than thorax, a little longer than broad, very finely punctured; hind body with the apex and the hind margins of segments more or less distinctly reddish-yellow, segments 2-4 closely and finely punctured, fifth more sparingly, sixth nearly impunctate; legs testaceous. L. 4 mm.

Male with the under plate of the seventh segment produced and narrowed towards apex, but scarcely bent upwards.

Marshy places; not uncommon in the neighbourhood of London; Tonbridge; Smallheath, near Birmingham (under bones); Needwood Forest, near Burton-on-Trent;

banks of Team near Ravensworth, Northumberland district ; Scotland, rare, Lowlands ; Tay, Dee, Solway, and Moray districts.

This species differs from *H. elongatula* by its almost invariably larger size, brighter colour, rather more transverse penultimate joints of antennæ, and the male characters.

H. hygrotopora, Kr. (*Atheta hygrobica*, Thoms. (*teste* Muls. et Rey.), *opacula*, Thoms.). Very like *H. elongatula*, but larger and broader ; black or pitchy black, with the elytra and extreme apex of hind body more or less obscurely pitchy brown ; head rather broad, narrower than thorax ; antennæ rather slender, pitchy black somewhat paler at base, joints 2-3 rather long, 4-10 differing very slightly in length, eleventh about half as long again as tenth ; thorax narrower than elytra, slightly transverse, scarcely narrowed behind, with an indistinct impression in front of scutellum ; elytra a little longer than thorax, finely punctured ; hind body black, shining, segments 2-4 rather finely and thickly punctured, fifth segment more sparingly punctured, sixth nearly impunctate ; legs testaceous. L. $3\frac{1}{2}$ -4 mm.

Male with the under plate of the seventh segment much produced, narrowed towards apex, apex not pointed.

Marshy places, on banks of rivers, &c. ; local ; Mickleham ; Tonbridge ; Liverpool ; Manchester ; Smallheath and Knowle, near Birmingham ; Bewdley ; Cannock Chase ; Northumberland district. Scotland, common Lowlands, especially in the south. Ireland, co. Wicklow (Champion).

From the preceding this species may be distinguished by its darker colour and shorter elytra.

H. elongatula, Grav. (*Metaxya elongatula*, Er., *Atheta elongatula*, Thoms.). An elongate and rather narrow species that somewhat closely resembles others of the group, but may as a rule be easily distinguished by its shape and general appearance ; colour black or pitchy-black with the elytra fuscous or reddish brown, and the apex of the elytra yellowish ; head narrower than thorax, rather rounded, finely and not very closely punctured ; antennæ rather long, scarcely thickened towards apex, joints 2-3 rather long and slender, third rather shorter than second ; 4-10 not differing much in length, the latter about as long as broad, eleventh nearly twice as long as tenth ; thorax slightly narrower than elytra, about as long as broad, scarcely narrowed behind ; elytra plainly longer than thorax, nearly square, together with thorax closely and finely punctured ; hind body shining, segments 2-4 rather closely and finely punctured ; fifth more sparingly, sixth nearly impunctate ; legs yellow. L. 3- $3\frac{1}{2}$ mm.

Male with the under plate of seventh segment narrow, and projecting considerably beyond upper plate, female with upper plate slightly emarginate.

Marshy places, under tidal refuse, in moss, &c. ; very common all over the kingdom.

This species varies in size and colour ; in some specimens, moreover,

the thorax is smooth, in others impressed at base, in others with a broad central channel; the head too is occasionally furnished with a channel or impression; small specimens resemble *H. gregaria*, but that species may be at once distinguished by the more close and even punctuation of the hind body and the elongate first joint of posterior tarsi; it comes exceedingly close to the following species, with which it was included, until they were separated by Scriba.

H. volans, Scriba (*Metaxya volans*, Muls. et Rey, *Atheta halophila*, Thoms., var. = *melanocera*, Thoms.). One of the most variable of all the species, some of its varieties being so closely allied to *elongatula* that it is doubtful if it is a separate species; the antennæ, however, are a little shorter and more slender, with the joints rather more narrowed towards base of each; it is as a rule smaller; the under plate of the seventh segment of hind body in male is broader, and in the female the upper plate is not at all emarginate. L. $1\frac{3}{8}$ – $1\frac{1}{2}$ mm. in the type form; some varieties are smaller and some larger.

The type form has the antennæ obscurely ferruginous, the thorax a fourth broader than long, elytra a third longer than thorax; legs reddish yellow.

Dr. Sharp enumerates the following varieties:—

a. Smaller than type, narrower and more parallel, with thorax longer and rather more narrowed behind; antennæ and legs dusky yellow. This var. is rather rare, and appears to be confined to Scotland.

β. Rather larger and more robust than the type, with the antennæ, legs, and elytra more brightly coloured; this var. and the type are the commonest forms, especially in the south.

γ. Like *β*, but still brighter in colour with more transverse thorax; rare, but generally distributed.

δ. Broader and more depressed than the type, black with the antennæ pitchy and slender; head small and thorax more transverse one-third broader than long. Very local, damp places on the Scotch hills.

The sculpture of thorax, &c., also varies very much, so that many more varieties might be formed; the extreme variation of this species seems to show that some of the other very closely allied species may be simply varieties one of another.

H. clavipes, Sharp. Black, rather shining, finely and closely punctured, with the elytra pitchy black; head narrower than thorax sometimes smooth, sometimes with a small channel or fovea; antennæ pitchy testaceous with base paler, second joint a little longer than third, 4–10 nearly equal in length but gradually broader, eleventh nearly twice as long as tenth; thorax nearly as broad as elytra, about as long as broad, with an indistinct impression at base, from which proceeds a short channel, often obsolete; elytra about as long as thorax, sometimes scarcely as long; hind body with segments 2–4 finely and densely punctured, fifth and sixth more sparingly, apex paler. Legs pitchy testaceous. L. $3\frac{1}{2}$ mm.

Male with ventral plate of seventh segment narrower than in female, and projecting considerably beyond upper plate.

A mountain species; Ben Lomond, Mamsoul, and other mountains and hills in the Dee, Moray, Solway, and Clyde districts; also found on Snowdon; Northumberland district (one specimen only recorded from Henhole, J. Hardy); Ireland, co. Down, moss on mountains.

Allied to *H. elongatula*, but rather larger, darker, and more shining, and with shorter elytra.

H. tibialis, Heer. (*nivalis*, Kies., *Geostiba tibialis*, Muls. et Rey). Resembles the preceding, but is much smaller; elongate, narrow, deep black, shining, with elytra very obscurely pitchy; head a little narrower than thorax, flattened in male, convex and with a small fovea in female; antennæ pitchy or pitchy black, basal joint slightly paler, a little thickened towards the apex, joints 2-3 about equal in length, 4-5 about as long as broad, 5-10 slightly transverse about equal, eleventh stout half as long again as tenth; thorax about as broad as elytra, distinctly broader than long, finely and not closely punctured, with a depression in front of scutellum; elytra about as long as thorax, rather sparingly punctured, with fine and scanty pubescence; hind body with segments 2-4 sparingly punctured, fifth still more so, sixth nearly impunctate; legs pitchy, sometimes yellowish, tarsi rather stout. L. $2\frac{2}{3}$ mm.

Male with the under plate of seventh segment considerably produced and narrowed towards apex, of female broad and slightly emarginate.

Found under the same circumstances as the preceding; common in high districts throughout Scotland; Snowdon; Lake district; abundant on the summits of the Cheviots; Ireland, co. Down, moss on mountains (Champion).

GROUP 5.

The species belonging to this group have the basal segments of the hind body sparingly punctured, and the apical ones nearly smooth; *H. vestita* ought perhaps to be separated from the rest, but is best left in this connexion.

H. vestita, Grav. (*Liogluta vestita*, Muls. et Rey, *Thinobcena quisquiliarum*, Thoms.). Black, rather shining, with the elytra brownish, clothed with yellow pubescence, which is thick on thorax and elytra, and sparing on hind body; head narrower than thorax, diffusely punctured; antennæ rather long and stout, usually dark ferruginous with base lighter, very slightly thickened towards apex, joints 2-3 about equal in length, 4-10 not differing much in length, but gradually broader, so that the latter are somewhat transverse, eleventh about twice as long as tenth; thorax about as long as broad, somewhat narrowed behind, finely and diffusely punctured, with a more or less distinct longitudinal channel; elytra longer than thorax, rather closely and coarsely punctured; hind body black and shining with apex paler, very sparingly

punctured, sixth segment nearly impunctate; legs testaceous, posterior tarsi long and rather stout. L. $3\frac{1}{3}$ mm.

Male with the under plate of seventh segment projecting a little beyond the upper and with apex rounded, female with the under plate not projecting and emarginate in middle.

Very common under sea-weed and among shingle on the coasts and estuaries throughout the country.

Easily distinguished by its very scanty punctuation.

H. nitidula, Kr. (*Liogluta nitidula*, Muls. et Rey, *Atheta nitidula*, Thoms.). Shining black with the elytra and sometimes the thorax pitch-brown; head narrower than thorax, diffusely punctured; antennæ fuscous, paler at base, slightly thickened towards apex, joints 2-3 elongate, 4-5 slightly oblong, 6-10 feebly transverse, eleventh twice as long as tenth; thorax only slightly narrower than elytra, somewhat transverse, finely and sparingly punctured, with an impression in front of scutellum, but not channelled; elytra plainly longer than thorax, but more closely punctured; hind body shining black, basal segments distinctly but diffusely punctured; apical segments almost impunctate; legs testaceous, sometimes more or less pitchy. L. $3\frac{1}{2}$ -4 mm.

Male with seventh segment sparingly granulate, apical margin truncate and obsoletely crenulate.

South of England, rare; occasionally in the nests of *Formica fuliginosa*; also in dead birds, &c.; Scotland, Braemar, Arran, Raunoch, &c. Ireland, co. Down (Champion).

H. alpestris, Heer. (*v. nitidiuscula*, Sharp). Very closely allied to the preceding, but rather lighter in colour, not quite so shining, and narrower, with antennæ rather thinner, thorax longer and narrower, not transverse, and elytra very slightly if at all longer than thorax; male characters as in the preceding species. L. $3\frac{1}{3}$ - $3\frac{1}{2}$ mm.

A mountain species; Scotland, local, Solway, Dee, and Moray districts; Ireland, on Slieve Donard.

H. oblongiuscula, Sharp. Black, shining with the elytra fuscous or ferruginous; head much smaller than thorax, diffusely punctured; antennæ black, stout, and distinctly thickened towards apex, joints 2-3 of about equal length, 4-10 differing very slightly in length, the first oblong, the last somewhat transverse, eleventh twice as long as tenth; thorax scarcely narrower than elytra, rather transverse, finely and diffusely punctured, not channelled; elytra slightly longer than thorax, thickly and finely punctured; hind body black and shining sparingly punctured, apical segments almost impunctate; legs testaceous, sometimes slightly infusate. 3- $3\frac{1}{3}$ mm.

Male with third joint of antennæ stouter than in female, seventh segment of hind body with hind margin obsoletely crenulate, and ventral plate more produced.

In moss, dead leaves, &c. ; rare ; Norwood, Shirley, Merstham, and Sanderstead (Surrey) ; Mickleham (in company with *F. fuliginosa*, Power) ; Drinkwater Park, Manchester ; Smallheath and Knowle near Birmingham (bones, &c.) ; banks of Team, Northumberland district ; Scotland, rare, Lowlands and Highlands, Solway, Tay, and Clyde districts. Ireland, co. Down (Champion).

This species is allied to *H. vicina*, but has no tubercle on the second segment of hind body ; it is also smaller, and has rather stouter antennæ and shorter elytra, and the femora are never darker than the tibiæ as in that species : from *H. nitidula* it may be known by its smaller size, comparatively stouter antennæ, and the male characters.

H. silvicola, Fuss (*Liogluta hypnorum*, Thoms. (?)). Shining black with the elytra reddish-castaneous ; head comparatively small, very sparingly punctured ; antennæ very peculiar to the species, long and stout, fuscous with lighter base, first joint stout, 2-3 rather long, fourth variable in different specimens, slightly oblong or transverse, 5-9 usually more or less transverse, tenth plainly transverse, eleventh stout and very long, as long as the three preceding together ; thorax rather narrower than elytra, somewhat variable in length, finely and rather diffusely punctured ; elytra rather longer than thorax, densely and rather strongly punctured ; hind body black and shining, with segments 2-4 distinctly but diffusely punctured, fifth sparingly punctured, sixth almost impunctate ; legs yellow. L. $3\frac{1}{2}$ - $4\frac{1}{4}$ mm.

Male with the under plate of seventh segment narrower and more produced than in female.

Sandy places, under dead leaves, moss, &c. ; rare ; Highgate, Mickleham, Bexley, Darenth Wood, Shirley, Caterham, Leith Hill, Esher, Addington ; Tonbridge ; Loughton ; Glanvilles Wotton ; Coleshill, near Birmingham ; Cannock Chase ; Bewdley ; Buddon Wood, Leicester ; Hartlepool. Scotland, rare, Solway and Moray districts.

The terminal joint of antennæ will distinguish this from all other allied species.

H. vicina, Steph. (*Liogluta umbonata*, Muls. et Rey, *fucicola*, Thoms.). Black, shining, with the elytra more or less testaceous with dark edges ; head narrower than thorax, diffusely punctured ; antennæ rather stout, black, joints 2-3 about equal in length, rather elongate, fourth oblong, 5-10 not differing much in length, the latter somewhat transverse, eleventh about twice as long as tenth ; thorax a little narrower than elytra, not narrowed behind, sparingly punctured, with an impression in middle of base ; elytra plainly longer than thorax, finely and rather closely punctured ; hind body black and shining very sparingly punctured, apical segments almost impunctate, second segment with a tubercle, very plain in male, indistinct in female ; legs testaceous, femora always darker than tibiæ. L. $3\frac{1}{2}$ mm.

Male with tubercle on second segment strong (a character that at once distinguishes the species) and the seventh segment with dorsal plate

sprinkled with small tubercles, the hind margin projecting a little in middle.

In haystack refuse, dung-heaps, decaying sea-weed, &c. ; very abundant throughout the country.

H. crassicornis, Sharp (Gyll. ?) (*Liogluta crassicornis*, Thoms. (sub-gen. *Hypnota*, Muls. et Rey = *granigera*, Kies., *teste* Muls. et Rey). Black or pitchy-black, shining, with the elytra reddish-brown or testaceous-brown, thorax sometimes brownish, hind body with posterior edges of segments and apex pale ; head narrower than thorax, sparingly punctured ; antennæ fuscous or fuscous testaceous with base lighter, rather long, slightly thickened towards apex, third joint a little longer than second, fourth oblong, 5–10 gradually shorter and thicker, eleventh as long as the two preceding, subacuminate ; thorax rather narrower than elytra, rather broader than long, shining, diffusely and plainly punctured ; elytra rather longer than thorax, alutaceous ; hind body pitchy black or black, shining, very sparingly punctured, apical segments almost impunctate ; legs yellow. L. $3\frac{1}{2}$ –4 mm.

Male with a broad impression on disc of thorax formed by two longitudinal impressions nearly united ; seventh segment of hind body thickly sprinkled with distinct granulations, hind margin of upper plate thickened and a little produced.

Very rare ; Scotland, Highlands, Dee and Moray districts ; also recorded from Manchester and Chat Moss.

The species may very easily be confounded with *H. pagana*, but is smaller, and narrower in front, and the male characters are different, but apparently very slightly so ; according to Mulsant and Rey the antennæ are darker and more sensibly thickened towards apex, the punctuation of the head is stronger, and that of thorax less close, and the elytra appear rather shorter ; the posterior tarsi are a little shorter with the four first joints less elongate.

H. pagana, Er. (*Liogluta pagana*, Thoms., sub-gen. *Hypnota*, Muls. et Rey. *H. arvicola*, Thoms). Very like the preceding, from which it differs in the above particulars ; head rather broad but narrower than thorax ; antennæ much as in *H. crassicornis*, last joint slightly less acuminate ; elytra very closely and finely sculptured, alutaceous ; abdomen shining, fourth, fifth, and sixth segments darker than base and apex, very sparingly punctured, apical segments impunctate ; second, third, and fourth joints of antennæ with numerous fine white hairs on inside ; legs yellow. L. 4– $4\frac{1}{2}$ mm.

Male with seventh segment distinctly granulated, and third joint of antennæ stouter than in female.

In moss, at roots of willows, under vegetable refuse, bones, &c. ; local and not common ; Wimbledon, Sanderstead, Birdbrook, Purley Downs, Darenth, Mickleham, Putney, Reigate ; Tonbridge ; Birmingham district ; Manchester ; Northumberland district, Ouseburn Dene, &c. ; Cheviot Hills ; Scotland, rare, Tweed, Forth, and Moray districts.

H. graminicola, Gyll. (*Liogluta* (*Megista*) *graminicola*, Muls. et Rey, *Atheta graminicola*, Thoms.). A very distinct species by reason of its shining black colour and the coarse and distinct sculpture of elytra; head much narrower than thorax, diffusely punctured; antennæ rather long and slender, scarcely thickened towards apex, third joint longer than second, fourth longer than fifth, 5–10 nearly equal, each longer than broad, eleventh about twice as long as tenth; thorax distinctly transverse, moderately closely punctured; somewhat asperate; elytra plainly longer than thorax, rather depressed, coarsely sculptured with small granulations; hind body sparingly punctured, fifth and sixth segments nearly impunctate; legs testaceous, or pitchy-yellow, femora darker than tibiæ. L. $3\frac{1}{3}$ – $3\frac{2}{3}$ mm.

Male with the head impressed, elytra more coarsely granulate and dull than in female, sixth and seventh segments covered with distinct granulations, the latter with apex truncate and finally crenulate, under plate considerably produced and narrowed towards apex.

Damp places, especially near river banks, flood refuse, &c.; very common throughout the kingdom.

A variety occasionally occurs with reddish elytra.

SECTION II.

Hind body parallel; thorax quadrate, or subquadrate; six penultimate joints of the antennæ transverse, but not very strongly so.

This section may be divided into the following groups:—

6. Head strongly punctured (p. 83).

7. Head finely punctured, or nearly impunctate (p. 84).

GROUP 6.

This group contains three closely allied species, which are found exclusively on the coast, and are very distinct from the other members of the genus. Thomson and Mulsant and Rey place them in a separate genus *Halobrectha*.

H. halobrectha, Sharp (*atricilla*, Er. (?), *flavipes*, Thoms., *maritima*, Wat.). Fuscous black, clothed with yellowish pubescence, with elytra, and sometimes thorax and head pitchy, and apex of hind body yellow; head scarcely narrower than thorax, coarsely and distinctly punctured; antennæ reddish yellow, slightly darker towards apex, joints 2–3 long, 4–10 each a little shorter and broader than the preceding, 8–10 transverse; thorax considerably narrower than elytra, subquadrate, or very slightly broader than long, rather closely punctured; elytra a little longer or hardly as long as thorax, closely but shallowly punctured; hind body black and shining, segments 2–4 sparingly punctured, 5–6 almost impunctate; legs yellowish. L. $2\frac{2}{3}$ –3 mm.

Male with the apex of the dorsal plate of seventh segment a little flattened on each side and obtusely pointed in middle.

A common species under sea-weed on the coasts of England and Scotland, and probably also of Ireland.

The name *H. atricilla*, Er., is apparently now adopted for this species on the Continent, but Dr. Sharp's reasons for not adopting it (as given l.c. p. 140) do not appear to have been refuted, Erichson's description not agreeing with our types.

H. algæ, Hardy (*puncticeps*, Thoms., *Halobrectha halensis*, Muls. et Rey). Very like the preceding, with which it has been included by some writers, but easily distinguished by its dark colour, more depressed form, longer elytra, and rather finer but more distinct punctuation; it also bears a resemblance to *H. plumbea*, with which it is found in company, but is readily separated by the punctuation of the head and general shape. L. $2\frac{2}{3}$ –3 mm.

Male with the apex of the dorsal plate of seventh segment truncate, the truncate part narrow and with an indistinct projection in middle.

Under sea-weed on the coast; not uncommon in the south, but less common towards the north. Scotland, local, Forth and Clyde districts.

H. princeps, Sharp. A rather large species, closely resembling *H. algæ*, and coloured like that species as a rule, but with the elytra sometimes fuscous-brown; it is allied by the male characters to *H. algæ*, and also by having the elytra comparatively longer than in *H. halobrectha*, and it is allied to the latter species by its punctuation, which is rather coarser than in the former species; the penultimate joints of the antennæ in *H. princeps* are not so broad in proportion to their length as in either of the other two. L. 4–4½ mm.

Very rare; Ventnor, Isle of Wight; although I have worked this locality for several years, I have only found three specimens; Southsea; Hayling Island (E. Saunders), one specimen.

The large size will at once distinguish this insect: I have a specimen that measures nearly 5 mm., but the abdominal segments are a little exserted.

GROUP 7.

This group is distinguished by having the head finely punctured or nearly impunctate; it is, as Dr. Sharp remarks, a very artificial one, and might well be divided into five or six others; this, however, would complicate matters without affording a corresponding advantage; it would perhaps be better to separate off the peculiar *H. cæsula* with its very short elytra, and the dull black linear and parallel species *H. nigella*. *H. subglabra* bears a somewhat close resemblance to *H. palustris*, near which perhaps it might be more correctly placed.

H. occulta, Er. (*assimilis*, Steph., *Bessobia occulta*, Thoms.). Rather narrow, black, or pitchy black with the elytra fuscous; head

with a depression in front, rather obsoletely punctured; antennæ entirely pitchy black, rather stout but scarcely thickened towards apex, first joint stout and rather long, 2-3 of about equal length, 4-10 of about equal length but gradually thicker so that 7-10 are transverse, eleventh about half as long again as tenth; thorax rather transverse, slightly narrowed behind, not channelled, finely and not very thickly sculptured; elytra plainly longer than thorax, finely and thickly punctured or even alutaceous; hind body black and shining, sparingly punctured, segments 5-6 almost impunctate; legs pitchy testaceous. L. $3-3\frac{1}{3}$ mm.

Male with the dorsal plate of seventh segment with sides very distinctly raised, apical margin also raised, apex broadly, but very indistinctly, emarginate: in this sex also the third joint of antennæ is much stouter and the head more plainly impressed.

Rare; in decaying fungi, moss, dung-heaps, &c.; Cowley (in cowhouse), Highgate, Gravesend, Forest Hill, Shirley, Walworth, Putney; Manchester (also a var. with dark legs); Lancashire; English Lake district; Smallheath and Knowle, near Birmingham (under bones); Northumberland district (one female, Bold).

H. fungivora, Thoms. (*Bessobia (Trichiota) gibbera*), Muls. et Rey). Very closely allied to the preceding; in fact in his last catalogue Dr. Sharp mentions it as merely a variety: it differs in being smaller, and in having joints 4-6 of the antennæ narrower in proportion, so that the antennæ appear more thickened; the head is broader and more broadly and plainly impressed, and the thorax is more strongly impressed at base; moreover the posterior margin of the seventh segment of the hind body in male is nearly straight instead of broadly emarginate, and often shows traces of one or two small teeth in middle. L. $2\frac{1}{2}-3$ mm.

In decaying fungi, especially those growing on stumps of trees in autumn, under moss, in haystack refuse, dung-heaps, &c.; occasionally on the wing and by sweeping; not uncommon, but local. London district generally; Midlands, widely distributed; Northumberland district; Scotland, rather common in several districts.

H. picipes, Thoms. (*fuscofemorata*, Wat., *Atheta picipes*, Thoms., *Traumæcia excavata*, Muls. et Rey). Rather shorter, broader, and more robust than the preceding, sculpture more or less alutaceous, more distinct on elytra than on head and thorax; head rather broad and short, broadly impressed, and channelled in male, more obscurely in female; antennæ pitchy or pitchy testaceous, lighter at base, first joint stout, 2-3 shorter than usual, fourth more slender than fifth, about as long as broad, 5-10 about equal, distinctly transverse, eleventh nearly as long as the two preceding; thorax nearly as broad as elytra, plainly transverse, with an impression or short channel in middle of base (broader in male); elytra square, rather longer than thorax; hind body black and shining, yellowish or brownish at apex, sparingly punctured, segments 5-6 almost impunctate; legs testaceous or pitchy testaceous. L. $2\frac{2}{3}$ mm.

Male with third joint of antennæ thickened, dorsal plate of seventh segment with posterior margin a little thickened and emarginate in

middle, ventral plate more produced than in female, dorsal plate in female with a distinct notch in middle.

Rare; under bark, &c.; Smallheath, Knowle, and Yardley, near Birmingham; Sherwood Forest; Manchester; Northumberland district. Scotland, scarce, Solway, Forth, Tay, and Moray districts.

This species somewhat resembles *H. fungicola*, but is more parallel, and has the antennæ shorter and much less stout, and the thorax and elytra are longer.

H. excellens, Kr. (*Bessobia excellens*, Muls. et Rey). Black, with the elytra fuscous black; head plainly narrower than thorax, rather dull, with indistinct punctuation, impressed in middle, antennæ rather short, distinctly, but not strongly thickened towards apex, joints 2-3 rather shorter than usual, 4-10 each broader than the preceding, 7-10 distinctly transverse, eleventh rather shorter than usual; thorax narrower than elytra, fully one-third broader than long, with an impression or fovea in front of middle of base from which proceeds a channel, often more or less obsolete, finely and rather densely punctured; elytra rather short, finely sculptured; hind body shining black, sparingly punctured towards base, apical segments nearly impunctate; legs pitchy, femora darker than tibiæ and tarsi. L. 3 mm.

Male with seventh segment of hind body furnished before apex with a curved transverse row of irregular tubercles, six in number, posterior margin triangularly notched.

Rare; a northern species; Studley Royal, Ripon (Waterhouse); Whitley Sands, Northumberland (Bold); Scotland, rare, Solway, Tay, Clyde, Dee, and Moray districts (Rannoch, Arran, Thornhill, &c.).

H. monticola, Thoms. (*Bessobia monticola*, Thoms., sub-gen. *Trichiota*, Muls. et Rey). Black with the elytra brownish or reddish brown; head rather broad, finely and sparingly punctured, in male with a broad impression, in female channelled; antennæ black, with base lighter, rather short and stout and somewhat thickened towards apex, joints 2-3 about equal, 4-10 each broader than the preceding, 5-10 distinctly transverse, eleventh pointed, half as long again as tenth; thorax plainly broader than long, finely and not thickly punctured; elytra longer than thorax, sculpture and pubescence fine; hind body shining black, sparingly punctured towards base, apical segments impunctate; legs pitchy yellow. L. 3 mm.

Male with the dorsal plate of seventh segment deeply triangularly emarginate in middle at apex, sides and apical margin raised, the latter with four raised longitudinal folds.

Rare. Purley Downs, Surrey; Winchester; Smallheath, under bones; Yardley, near Birmingham, in grass-tufts; Washington and Gosforth, Northumberland district; Wallington, Northumberland; Scotland, local, in fungus, Thornhill, Dumfries, and Balmuto, Fifeshire; Ireland, near Waterford (Power).

The very peculiar male characters will at once distinguish this species.

H. subglabra, Sharp. (*Atheta subglabra*, H. R. W.). Resembles *H. palustris*, but is rather broader, more robust, and more shining; black, with the elytra pitchy testaceous; head black and shining, finely pubescent, almost impunctate, eyes rather prominent; antennæ black, rather long and stout, joints 1-3 elongate, 4-10 each broader than the preceding, 7-10 plainly transverse, eleventh about twice as long as tenth; thorax narrower than elytra, one-third broader than long, sides nearly straight, not narrowed behind, punctuation very fine and not dense, without fovea or channel; elytra plainly longer than thorax, finely alutaceous; hind body black and shining, basal segments sparingly punctured, apical segments impunctate; legs pitchy testaceous. L. $2\frac{1}{3}$ - $2\frac{1}{2}$ mm.

Sexual differences very indistinct.

Rare. Buddon Wood, Leicester (Blatch), Seghill Dene, Northumberland district (Bold); Scotland, rare but rather widely distributed, Solway, Tay, Clyde, Dee, and Moray districts (Rannoch, Arran, Thornhill, Strath Cannich, &c.).

H. nigella, Er. (*Pachnida nigella*, Muls. et Rey, *Dinaræa punctiventris*, Thoms.). This species, as above remarked, very closely resembles a small *A. incana*; it is narrow and linear with the head and thorax dull black, and the hind body of a somewhat more shining black colour; the antennæ are rather short and stout, testaceous at base, darker towards apex, with joints 4-10 each a little broader than the preceding, 6-10 distinctly transverse, eleventh not quite twice as long as tenth; thorax slightly transverse, not, or scarcely, narrowed behind, very thickly, finely, and obsoletely punctured, with a broad central longitudinal impression; elytra slightly longer than thorax, sculpture dense and distinct, consisting of minute granulations; hind body with segments 2-4 closely and distinctly punctured, fifth more sparingly, sixth nearly impunctate, but granulate in male; femora pitchy, tibiæ and tarsi pitchy testaceous. L. $2\frac{1}{2}$ mm.

Male with sixth segment of hind body sparingly covered with granulations, seventh segment with hind margin furnished with four small tubercles: in the females these segments are simple.

Marshy places; in stems of reeds and in the axils of the leaves of water plants; also in moss, refuse, &c., on the banks of ponds and pools; rather common in the south-eastern, London, and fen districts, and also in the Midlands; it has not, however, occurred further north.

H. æquata, Er. (*Dinaræa æquata*, Thoms.). Front parts dull black, elytra brownish; head rather large, nearly as broad as thorax, broadly depressed in male, indistinctly sculptured; antennæ stout, sensibly thickened towards apex, first joint stout, third a little longer than second, 5-10 plainly transverse, eleventh twice as long as tenth; thorax nearly as broad as elytra, subquadrate, slightly narrowed behind, very dull and indistinctly sculptured, with a broad longitudinal depression in middle, which is sometimes channelled; elytra a little longer

than thorax, finely and thickly punctured; hind body black, apex of segments obscurely brownish, segments 2-4 closely punctured, fifth more sparingly, sixth almost impunctate; legs yellow. L. $3\frac{1}{3}$ mm.

Male with the fifth dorsal segment with two granulations, sixth with two rows of short longitudinal raised lines, four in each row, posterior margin of seventh with four small teeth, the outer ones indistinct.

Under bark of various trees; not uncommon; London district generally; Tilgate Forest; Tonbridge; New Forest; Repton, Bewdley, Needwood, Leicester, Sutton Park, and Midlands generally; Sherwood Forest; Dean Forest; Bangor; not found in the north of England or in Scotland.

Distinguished by its very dull head and thorax, brownish elytra, and yellow legs.

H. angustula, Gyll. (*Dinaræa angustula*, Thoms., sub. gen. *Polyota*, Muls. et Rey. Parallel, rather depressed, head and hind body black, thorax variable in colour, black, reddish, or even yellowish, elytra rather bright reddish; head closely and finely punctured, dull, deeply impressed in male; antennæ rather long and stout and gradually thickened towards apex, joints 2-3 nearly equal, rather long and stout, 4-5 longer than broad, sixth about as long as broad, 7-10 transverse, eleventh about twice as long as tenth; thorax nearly as broad as elytra, subquadrate, very finely and densely punctured, with a very distinct longitudinal channel; elytra about the length of thorax, or very slightly longer, very thickly and finely punctured; hind body black, apex lighter, rather dull, segments 2-5 thickly punctured, sixth segment rather sparingly punctured; legs yellow. L. $3-3\frac{1}{3}$ mm.

Male with the sixth segment covered with small elevations, seventh with four short raised lines before apex, and four on hind margin projecting a little beyond margin, the outer ones very indistinct.

Marshy places; in moss, flood refuse, &c.; occasionally in sandpits; local, but not uncommon; London district, widely distributed; Isle of Wight and southern districts; Midlands, rather common; Chat Moss; Manchester; not found hitherto in the extreme north of England; Dr. Sharp possesses Scotch examples of the species, but without note of their locality.

The bright colouring, parallel form, and very strongly channelled thorax will at once separate this species.

H. linearis, Grav. (*Dinaræa linearis*, Thoms., sub. gen. *Aglypha*, Muls. et Rey). Rather narrow, black, with the elytra reddish brown, and the apex of abdomen testaceous; head rather dull, not very distinctly punctured, with a longitudinal impression in middle, broadly impressed in male; antennæ yellowish with basal joints clear yellow, rather stout, a little thickened towards apex, with distinct projecting hairs, first joint stout, 2-3 equal in length, fourth not so broad as fifth, 6-10 distinctly transverse, eleventh half as long again as tenth; thorax nearly as broad as elytra, about one-fourth broader than long, rather shining and finely punctured, with a distinct longitudinal channel;

elytra about the length of thorax, and rather more distinctly punctured; hind body with segments 2-4 sparingly punctured, 5-6 almost impunctate and shining; legs yellow. L. $2\frac{3}{4}$ -3 mm.

Sexual differences of hind body hard to distinguish, but the male has the head broadly impressed.

Under bark of dead trees, in moss on tree trunks, &c.; local, but not uncommon. London district generally; Horning Fen and other fen localities; N w Forest; Knowle, near Birmingham; Cannock Chase; Sherwood Forest; not recorded from Northumberland district. Scotland, local, Forth district.

This species resembles *H. aquata*, but is less robust and smaller, and more shining, and has the hind body more sparingly punctured.

H. pilicornis, Thoms. (*pilosa*, Kr., *Atheta pilicornis*, Thoms., *xanthopus*, Muls. et Rey. H. R. W., nec *xanthopus*, Thoms.). Broader and more robust than the preceding, and with longer elytra; head black, rather broad and short, shining, sparingly and finely punctured; the species is easily distinguished by its antennæ, which are verticillate pilose, having each of the segments furnished with long projecting hairs, much more so than is usual with members of the genus; their colour is yellowish with basal joints clear yellow; they are rather stout, and gently thickened towards apex, joints 1-3 elongate, 4-6 about as long as broad, 7-10 transverse, eleventh half as long again as tenth; thorax nearly as broad as elytra, black or pitchy brown, slightly transverse, not thickly punctured, with traces of channel in middle; elytra brownish or reddish brown, rather longer than thorax, very finely punctured, alutaceous; hind body black and shining, testaceous at apex, segments 2-4 finely and diffusely punctured, fifth more sparingly, sixth almost impunctate, sides and apex furnished with long outstanding hairs; legs clear yellow. L. $3\frac{1}{3}$ mm.

Male with dorsal plate of seventh segment with apex truncate, posterior margin not quite straight, thickened, and indistinctly crenulate.

Female with the seventh dorsal segment of hind body broadly and obsoletely emarginate at apex, with the external angles acute, seventh ventral segment emarginate in middle.

Rare; under bark, in moss, dead leaves, &c.; Richmond Park, Surrey; Hampstead (Bishops Wood); Highgate; Tilgate Forest; Needwood Forest (under holly bark); Sherwood Forest; Scotland, rare, under bark, Solway and Tay districts.

H. debilis, Er. (*Atheta debilis*, Thoms., *Hygracia debilis*, Muls. et Rey.). Rather a narrow species, pitchy black, with the elytra brownish or yellowish, and the apex of hind body testaceous; the thorax is sometimes lighter than the head; head short, but rather large, finely and thickly punctured; antennæ testaceous, a little thickened towards apex, joints 1-3 rather long, 4-5 rather slender, sixth about as long as broad, 7-10 transverse, eleventh rounded, rather shorter than usual; thorax about as broad as elytra, slightly transverse, finely and closely punctured, more or less indistinctly channelled; elytra plainly longer than thorax, finely and rather

thickly punctured; hind body shining, rather long, segments 2–4 finely and rather closely punctured, fifth more sparingly, sixth almost impunctate; legs clear yellow. L. $2\frac{2}{3}$ mm.

Male with ventral plate of seventh segment produced considerably beyond upper plate, apex truncate.

Marshy places, in flood refuse, moss, &c.; local, and as a rule uncommon; Notting Hill; Lee; Darent Wood; Tonbridge; Repton; Scarborough; Scotland, local, Lowlands, Solway district.

This species has somewhat the appearance of a small *H. elongatula*.

H. fallaciosa, Sharp (*Hygræcia parca*, Muls. et Rey). Resembles the preceding, but is more robust and duller, with narrower head, and shorter elytra; head considerably narrower than thorax, finely punctured; antennæ much as in the preceding species; thorax nearly as broad as elytra, distinctly transverse, and more convex than in *H. debilis*, with an obscure impression in front of scutellum, finely and closely punctured; elytra very plainly transverse only slightly longer than thorax, thickly and finely punctured; hind body shining, punctured as in the preceding species. L. 3 mm.

Male with the head more distinctly channelled, and with ventral plate of seventh segment produced and narrowed towards hind margin which is rounded.

Marshy places; rare; Lee, Kent (Champion). Scotland, local, Lowlands, Solway Tay, and Dee districts.

Distinguished from small varieties of *H. volans* by its shorter and stouter antennæ, with transverse penultimate joints.

H. deformis, Kr. (*Thinæcia (Hydrosmeeta) deformis*, Muls. et Rey, *complana*, Mann. (?)). A small, peculiar, immature-looking species, very thickly pubescent, pitchy-brown, with the thorax and elytra, and sometimes head, fuscous testaceous, and the apex of hind body testaceous; head rather broad, finely and indistinctly punctured; antennæ testaceous, stout for the size of the species, slightly thickened towards apex, third joint plainly shorter than second, much longer than fourth (if viewed sideways), 7–10 distinctly transverse; thorax nearly as broad as elytra, transverse, thickly and finely punctured, with a broad longitudinal channel in middle; elytra longer than thorax, thickly and finely punctured, hind body with segments 2–4 finely punctured, fifth sparingly, sixth almost impunctate. L. 2 mm.

Male with hind margin of dorsal plate of seventh segment gently rounded, female with the same part widely and indistinctly emarginate.

Marshy places; rare; Eltham (Kent); Wandsworth; Tonbridge Wells.

H. cæsula, Er. (*Geostiba cæsula*, Muls. et Rey, *Sipalia brachyp-tera*, Thoms.). One of the most distinct of the Homalotæ by reason of its small size and exceedingly short elytra; shining black or fuscous black with the elytra sometimes, but not always, fuscous; head large, almost impunctate, narrowed in front; antennæ pitchy, or entirely more

or less obscurely testaceous, with the base in either case lighter, third joint shorter than second, 6–10 plainly transverse; thorax almost wider than elytra, slightly broader than long, finely punctured, and obsoletely channelled in male; elytra very short, apparently only about half the length of thorax, finely, plainly, and somewhat rugosely punctured; hind body shining, narrower at base than apex, sparingly punctured towards base, apical segments impunctate; legs lighter or darker yellowish, femora sometimes pitchy. L. $1-1\frac{1}{5}$ mm.

Male with apex of seventh segment distinctly produced, and broadly truncate.

Sandy places, at roots of grass; rare; Sheerness; Deal; Hayling Island; Portland, 1886 (J. J. Walker); Weymouth; Leasowe, Liverpool; “under sea-weed and stones at South Shields and Marsden in March” (J. Hardy); not recorded from Scotland.

SECTION III.

Hind body parallel; thorax quadrate or subquadrate; five or six penultimate joints of the antennæ strongly transverse.

This section may be divided into the following groups:—

8. Convex, or but little depressed species (p. 91).

9. Very flat species (p. 93).

GROUP 8.

The species comprising this group are very rare with the exception of *H. circellaris*, which is one of our commonest insects; with the exception of *H. ægra* they are rather brightly coloured, being mostly of a reddish-testaceous or brownish-yellow colour.

H. circellaris, Grav. (*Geostiba circellaris*, Thoms.). Reddish yellow or reddish brown, with the head and a more or less broad portion of the hind body darker; head rather long, ovate, a little narrowed in front, almost impunctate; antennæ testaceous, joints 1–3 elongate, 4–5 about as long as broad, 6–10 transverse, eleventh as long as the two preceding; thorax subquadrate, about as broad as elytra, feebly impressed at base, closely and indistinctly punctured; elytra very transverse, plainly shorter than thorax, closely and rather strongly punctured; hind body with segments 2–4 finely and rather thickly punctured, 5–6 almost impunctate; legs yellow. L. $2\frac{2}{3}$ –3 mm.

Male with a distinct elevation on each elytron near base, sixth segment of hind body with a raised tubercle before apex in middle, hind upper margin of seventh segment with two indistinct tubercles, under plate considerably produced beyond upper.

Both marshy and dry places; under stones, moss, bark, &c.; very abundant throughout the kingdom; one of the most distinct and commonest species.

H. elegantula, Bris. (*Aleuonota elegantula*, Muls. et Rey). Reddish

yellow or brownish testaceous with the head and central portion of the hind body more or less pitchy; head rather elongate, parallel-sided, narrower than thorax, with mandibles and palpi reddish yellow, rather strongly and not closely punctured, impressed or channelled; antennæ testaceous, stout, much thickened towards apex, second joint longer than third, 4–10 transverse, the latter very strongly so, eleventh as long as the two preceding, all the joints furnished with long projecting hairs; thorax about as long as broad, diffusely punctured, alutaceous between punctures, with distinct central channel; elytra long, plainly longer than thorax, very finely alutaceous; hind body almost impunctate, but very finely alutaceous, and covered sparingly with long hairs; legs yellow. L. $3\frac{1}{3}$ mm.

The sexual characters are apparently very slight.

In moss, &c.; occasionally by sweeping or on the wing; rare; Chatham and Sheerness (J. J. Walker); Reigate, Esher, Shirley, Amberley, Caterham, Wandsworth, Ashstead, Claygate (Esher), Monks' Wood, Amberley; New Forest; Studley, near Ripon.

H. rufotestacea, Kr. (*Aleuonota atricapilla*, Thoms.). Rufotestaceous with the head and fifth segment and base of sixth segment of hind body pitchy; head rather narrow, with sides nearly parallel, obsoletely punctured; antennæ yellow, stout, thickened towards apex, second joint longer than third, 4–10 strongly transverse, eleventh nearly as long as the two preceding; thorax narrower than elytra about as broad as long, slightly narrowed behind, rather dull, alutaceous, very obsoletely punctured, finely and not distinctly channelled; elytra plainly longer than thorax, alutaceous; hind body shining and impunctate; legs testaceous. L. $2\frac{2}{3}$ –3 mm.

Male with the apical margin of ventral plate of seventh segment regularly rounded, female with the same part slightly sinuate.

By sweeping herbage; unique as British; Mickleham, Surrey, one example, May 1868 (Champion). In France it has been found rarely in flood refuse.

H. hypogæa, Rey (*egregia*, Rye). This species is allied to both the preceding, which it resembles in colour; the antennæ however are longer, gradually and but slightly thickened towards apex, with the fourth joint considerably less transverse, joints 5–10 rather differently shaped, and the apical joint much longer; it is more depressed and more shining than *H. rufotestacea*; the thorax, too, is darker than in that species, more obsoletely channelled, and more plainly punctured, and the elytra are rather longer; the smaller size, very obsoletely punctured head, and shape of the antennæ will at once separate it from *H. elegantula*. L. 3 mm.

Unique as British; one specimen taken by sweeping in a lane at Caterham, Surrey, on June 3, 1873, by Mr. Champion.

H. splendens, Kr. (*Ouralia splendens*, Muls. et Rey). Linear, narrow, black or pitchy, with the elytra, and often thorax, brownish, and

apex of hind body testaceous ; head large and broad, parallel-sided, flat, diffusely punctured ; antennæ testaceous, stout, joints 1-3 elongate and rather stout, 4-10 transverse, the latter very strongly so, eleventh large, as long as the two preceding ; thorax subquadrate, almost impunctate ; elytra longer than thorax with very indistinct sculpture ; hind body shining and almost impunctate, segments 5-6 usually darker than the others ; legs light yellow. L. $2\frac{1}{2}$ mm.

Dr. Sharp's specimens are all females ; I can find no description of the male characters.

Very rare ; Lee and Esher ; chalkpit, Charlton, Surrey, (Sharp) ; roots of grass in sandpit near Dorking (Champion) ; Tonbridge (Horner).

H. ægra, Heer. (*Microdota ægra*, Muls. et Rey). Shining, scarcely visibly punctured, finely and sparingly pubescent, black or pitchy black with the elytra and sometimes thorax rather lighter, apex of hind body obscurely yellowish ; head rather large, parallel-sided ; antennæ slightly thickened towards apex, pilose, third joint shorter than second, fourth as long as broad, 5-10 transverse, the latter very plainly so, eleventh shorter than usual, not as long as the two preceding together ; thorax slightly transverse, a little narrower than elytra, impunctate ; elytra very plainly longer than thorax, smooth ; hind body shining, almost impunctate, but under a high power finely alutaceous, and studded very sparingly with fine granules from which arise rather long hairs ; legs yellow. L. 2 mm.

Male with the upper and under plates of seventh segment of hind body narrower than in female, under one more produced.

In moss, &c. ; occasionally by sweeping ; rare ; Purley Downs, Esher, Shirley, Mickleham, Dagenham, Caterham ; Brighton ; Cambridge ; Scotland, rare, Lowlands, Forth district (Edinburgh).

GROUP 9.

This group consists at present of three species, of which *H. immersa* and *H. cuspidata* are always found under bark, and may be recognized by their very flat appearance ; *H. cribriceps* is a very peculiar insect, and somewhat doubtful, as it rests on one specimen without locality ; *H. plana* has until comparatively recently been placed in this group, but was separated off as a distinct genus—*Epipeda*—by Mulsant and Rey. I have followed Dr. Sharp in adopting this arrangement, as his judgment is so much to be depended upon in all matters relating to the Staphylinidæ, but that of the last European catalogue appears in some ways preferable, in which *Epipeda* is merged as a sub-genus under *Thectura*, Thoms., and so is brought again into closer connection with *H. cuspidata*, which is the sole representative of that genus in its narrowest sense : it seems certain that if *H. plana* be removed, *H. cribriceps* should also be taken out of the group, as it was chiefly placed in its present position through its relation with that species ; it is, however, left in the group provisionally, so little being known about it, that it is almost impossible to place it elsewhere at present.

H. immersa, Er. (*Dadobia planicollis*, Thoms., *Dadobia immersa*, Muls. et Rey, genus *Thectura*, Thoms., H. R. W.). A small flat species, black or dark pitchy black; head large and broad, narrowed in front of eyes, with sides parallel behind eyes, posterior angles nearly right angles, finely but rather distinctly punctured; antennæ short, third joint nearly as long as, but more slender than, second, 5–10 transverse, the latter more strongly so, eleventh long, twice as long as tenth; thorax as long as broad, plainly narrowed behind, rather dull, finely punctured; elytra a third longer than thorax longer than broad, finely and not thickly punctured, sometimes obscurely lighter than the rest of the insect; hind body black, rather narrowed and feebly punctured towards base, impunctate behind, femora pitchy; tibiæ and tarsi testaceous. L. $1\frac{3}{4}$ –2 mm.

Male with the seventh segment not projecting, apical margin slightly emarginate, forehead obsolete but visibly impressed; female with seventh segment projecting, apical margin obtusely rounded, forehead even.

Under bark of trees, especially fir; not common. Cobham and Sevenoaks, Kent; Reigate; Hainault; Richmond, Surrey; The Holt, Farnham; Tonbridge; Smallheath and Knowle, near Birmingham; Markfield, near Leicester; Cannock Chase; Needwood, near Burton-on-Trent; Sherwood Forest; Northumberland district; Scotland, local, Forth, Tay, Tee, and Moray districts.

The peculiar shape of the head will distinguish this species; it is broader, shorter, and more narrowed in front than in the succeeding.

H. cuspidata, Er. (*inconspicua*, Heer., *Thectura cuspidata*, Thoms.). A very small, flat species, pitchy black or brown with the apex of the hind body obscurely lighter; head quadrate, broad and flat, closely and distinctly punctured; antennæ short, thickened towards apex, third joint as long as second but more slender, 4–10 plainly transverse, eleventh comparatively short; thorax somewhat broader than long, channelled; elytra half as long again as thorax finely and rather thickly punctured; hind body with the basal segments finely and not thickly punctured, apical segments impunctate, apex of seventh joint with a long projecting spine in middle; legs yellow, tarsi short. L. $1\frac{1}{2}$ mm.

Male with third, fourth, and fifth segments each with a pair of tubercles on the upper side, spine on seventh larger than in female.

Under bark of oak, fir, and other trees; rather common in the London district, and Southern and Midland counties, but I can find no record further north than Scarborough; it has not hitherto occurred in Scotland.

The species may at once be distinguished, apart from its size and shape, by the distinct spine at the apex of hind body, which is present in both sexes, but is most distinct in the male; on either side of the large spine there is a small one; these, however, are not always very apparent.

H. cribriceps, Sharp. Broad, rather depressed, somewhat shining, pitchy-black, with the elytra yellowish, their apical angles fuscous;

head nearly black, narrowed behind eyes which are large and prominent, very coarsely and closely punctured, with a smooth space in front; antennæ yellow at base, somewhat fuscous towards apex, rather short and stout, third joint as long as second, fourth as long as broad, much narrower than fifth, 5-10 strongly transverse, eleventh as long as the two preceding; thorax very transverse with sides much rounded and narrowed behind, coarsely and closely punctured, especially on disc; elytra plainly longer than thorax, indistinctly punctured; hind body pitchy, paler towards apex, with basal segments rather closely, apical segments sparingly, punctured; legs yellow. L. $2\frac{1}{2}$ mm.

A rather doubtful species that rests entirely on one example of which the locality is unknown; it is very peculiar in appearance, and can hardly be compared with any other species; the specimen is in Dr. Power's collection.

SECTION IV.

Hind body parallel; thorax moderately transverse, its sides evenly rounded.

This section comprises three groups as follows :—

10. Sixth segment of hind body punctured sparingly, or impunctate; antennæ moderately long, not stout (p. 95).
11. Sixth segment of hind body closely punctured; antennæ not very stout (p. 97).
12. Sixth segment of hind body impunctate; antennæ stout or very stout (p. 100).

GROUP 10.

The species belonging to this group may be distinguished from some of those to which they bear a resemblance by their short thorax, taken in conjunction with their somewhat thin antennæ, of which the fourth joint is well developed.

H. eremita, Rye (*islandica*, Kr., *Liogluta* (*Hypnota*) *eremita*, Muls. et Rey.) Black or pitchy black with the elytra sometimes brownish, apex of hind body obscurely testaceous; head short and rather broad, but much narrower than thorax, finely punctured; antennæ obscurely testaceous, rather long and slender, third joint longer than second, 4-10 only slightly different, eleventh nearly as long as the two preceding; thorax half as broad again as long, almost broader than elytra, finely punctured, with an impression or short channel at base; elytra short, not as long as thorax, more distinctly sculptured than thorax; hind body black, sparingly punctured towards base, smooth and shining towards apex, apical segments with numerous long projecting hairs; legs testaceous, femora sometimes darker. L. $3-3\frac{1}{3}$ mm.

Male with the under plate of seventh segment of hind body considerably produced and narrowed towards apex.

A common Scotch species in moss in both Lowlands and Highlands; Northumber-

land district; Manchester district; Coleshill and Sutton Park, Birmingham; Cannock Chase; Dean Forest; has not, however, been recorded from further south. Ireland, co. Down, moss on mountains (Champion).

The broad thorax and short elytra of this species will at once distinguish it.

H. Aubei, Bris. (*breviceps*, Thoms. sub-gen. *Dimetrota*, Muls. et Rey). Fuscous black, with the elytra as dark as the rest of the body, or dark chestnut-brown; head much smaller than thorax, finely punctured, and distinctly channelled; antennæ rather long and slender pitchy with paler base, second and third joints about equal, 4-10 differing little in length, eleventh half as long again as tenth; thorax nearly half as broad again as long, almost more narrowed in front than behind, with sides gently rounded, closely and finely punctured, with an obscure impression at base from which proceeds a somewhat obsolete channel; elytra broader and longer than thorax, closely and finely punctured; hind body with segments 2-4 thickly punctured, fifth more sparingly, sixth almost impunctate; legs testaceous or pitchy testaceous. L. $2\frac{2}{3}$ mm.

Male with the upper plate of the seventh segment of hind body narrowly emarginate at apex (?).

Very rare; Horning Fen, Norfolk; also taken by Mr. Hislop in Scotland.

I feel a little doubt as to this species, as the descriptions are rather at variance. Dr. Sharp (l.c. p. 171) lays stress on the fact that joints five to nine of the antennæ "are each longer than broad, ten about as long as broad," and he also says that he cannot satisfactorily separate the male from the female; Mulsant and Rey says expressly (*Brévipennes Myrmédoniaires*, p. 440) that the fourth and fifth joints of antennæ are sensibly transverse, and the sixth to the tenth rather strongly transverse, and they give the above male character. As Dr. Sharp compared his specimens with M. Brisout's types, they must be right; viewed from above the joints in Dr. Sharp's type certainly appear transverse, viewed sideways it would be rather hard to tell whether the latter of them were transverse or not; this may perhaps explain the discrepancy; as regards the sexual differences Mulsant and Rey say that the female is unknown to them: these facts are mentioned, as showing the difference that is often found between descriptions of the same species given by different authors. *H. Aubei* is an obscure species. Dr. Sharp compares it with *H. gemina* and *H. volans*; it is twice the size of the former, and has the fifth segment of hind body punctured; from small varieties of *H. volans* it may be separated by its shorter and broader thorax, and more closely punctured hind body.

H. gemina, Er. (*Atheta gemina*, Thoms., *Metaxya gemina*, Muls. et Rey). Fuscous black with apex of hind body testaceous; and the elytra sometimes a little lighter; head considerably narrower than

thorax, channelled, indistinctly punctured; antennæ pitchy or pitchy testaceous with base lighter, joints 2-3 about equal, 4-10 differing little in length, gradually slightly broader, eleventh rather long, nearly as long as the two preceding together; thorax nearly half as broad again as long, more narrowed in front than behind, with sides gently rounded, thickly and finely punctured, with an obsolete double impression before scutellum; elytra plainly longer than thorax, finely punctured, but rather more distinctly than thorax; hind body with segments 2-4 distinctly punctured, 5-6 almost impunctate; legs testaceous. L. 2 mm.

Male with channel on head longer and more distinct than in female, ventral plate of seventh segment of hind body more produced and narrower.

Marshy places; rare; Hammersmith Marshes; Lee, Kent; Scotland, local, Solway district; Thornhill, near Dumfries.

About the size of *H. analis*, but easily distinguished by its longer antennæ and quite differently shaped head.

H. curtipennis, Sharp. Allied to the preceding, but easily distinguished by its much shorter elytra and shorter antennæ, of which the joints are more transverse; the thorax is about as broad as the elytra, and shaped much as in *H. gemina*; sometimes it is even, and sometimes broadly channelled; elytra scarcely longer than thorax, and usually of a lighter colour, finely and densely punctured; hind body as in the preceding species; legs testaceous, sometimes a little infusate. L. 2 mm.

Scotland, local and not common; Forth, Tay, Dee, and Solway districts (Rannoch, Pentlands, Thornhill, &c.). Sutton Park, near Birmingham, grass-tufts in bogs (W. G. Blatch).

GROUP 11.

The species belonging to this group may be distinguished by the shape of their antennæ which are moderately but not very stout, but more especially by the closely punctured sixth segment of the abdomen; several of the species are so extremely closely allied that it is very difficult to determine whether they are really separate species or races of the same species; they are all small, none exceeding 2 mm. in length.

H. vilis, Er. (*Dilacra vilis*, Muls. et Rey). Fuscous black, with the elytra, and sometimes thorax, brownish, dull, rather thickly pubescent, apex of hind body pitchy brown; head rather large and almost quadrate, parallel-sided, very finely punctured; antennæ dirty testaceous, third joint rather shorter than second, 4-10 differing little in length and breadth, rather stout, eleventh nearly as long as the two preceding; thorax broader than long, very finely punctured; elytra longer than thorax and rather more distinctly sculptured; hind body closely punctured throughout; legs testaceous. L. $1\frac{3}{4}$ -2 mm.

Male with head obscurely impressed, seventh segment of hind body a little produced underneath.

Very rare; marshy places; Eltham, Kent (Sharp); Tonbridge (Horner); Lee,

Kent (Champion); rare in France, under dead leaves on the banks of ponds or streams.

H. laticeps, Thoms (*difficilis* Bris., *pumila*, Kr., *nana*, Muls. et Rey, *Dilacra difficilis*, Muls. et Rey, *Atheta laticeps*, Thoms.). Very near the preceding, but easily distinguished by its smaller size, lighter coloured antennæ, shorter thorax, and elytra longer in proportion; the colour also is usually lighter; the head is larger, being almost as large as thorax, and the punctuation of the hind body is a little less close; the male has the seventh segment of the hind body slightly emarginate both above and below. L. $1\frac{1}{2}$ mm.

Marshy places; under dead leaves, in flood refuse, &c.; very rare; Lee, Staines, Arundel, and Egham (Surrey) (Champion).

This and the preceding species somewhat resemble *H. analis*, but *H. vilis* has longer antennæ, which are less thickened, and a more parallel-sided head; *H. laticeps* is distinguished by its small size, colour, and general appearance.

H. analis, Grav. (*Amischa analis*, Thoms., *arata*, Muls. et Rey, *filum*, Muls. et Rey, *tantilla*, Woll., *contempta*, Heer). Black with the thorax and elytra pitchy, more or less lighter or darker coloured, apex of hind body testaceous; head rather large, considerably widened behind eyes, obscurely triangular, obsoletely punctured; antennæ rather thickened towards apex, third joint shorter than second, fourth much shorter than third, 5-10 of about equal length, but each a little broader than the preceding, eleventh large, as long as the two preceding; thorax plainly broader than long, nearly as broad as elytra, sides moderately rounded, scarcely narrowed behind, very finely punctured, with a fovea or indistinct channel in front of scutellum; elytra rather short, closely punctured; abdomen rather dull, closely punctured throughout, seventh segment of hind body triangularly emarginate in middle; legs yellowish or clear yellow. L. $1\frac{3}{4}$ -2 mm.

Sexual differences indistinct.

Extremely abundant in all sorts of situations throughout the kingdom.

The colour varies from quite black or pitchy black with legs and antennæ pitchy to pitchy brown with thorax and elytra bright reddish brown, and legs and antennæ yellow.

A large dark variety occurs, which is found more commonly in the north than the south, which, besides colour and size, differs from the type form in having the joints of antennæ longer, the thorax more transverse and broader, and the elytra longer; the hind body also is duller and more closely punctured: this variety is very like *H. soror*, and appears to be quite as distinct a species as several others that are described as allied to *H. analis*; at all events it should be provisionally separated as *H. analis*, var. *major*, Sharp.

H. decipiens, Sharp. This species is described by Dr. Sharp as

very closely allied to *H. soror*, and differing from it only by the more finely punctured hind body, with differently formed seventh segment, and by having the legs, antennæ, and extremity of the abdomen of a clearer yellow colour; it is also on the average slightly smaller than *H. soror*. L. $1\frac{3}{4}$ –2 mm.

Male with the under plate of the seventh segment of hind body slightly narrower and more elongate than in female.

Marshy places; rare; Lee, Chatham, Hammersmith, Charlton (Kent); Southend; Tonbridge; Weymouth.

Distinguished from *H. analis* by its rather longer elytra, more closely punctured hind body, and the absence of the notch on the seventh segment which appears to be always found in *H. analis*; in the catalogue of Heyden, Reitter, and Weise the species is sunk as the female of *H. analis*; it is true that the sexual differences of *H. analis*, as mentioned above, are obscure, and that Kraatz considered the emargination to be indicative of the male; if *H. decipiens* were as abundant as *H. analis* it might prove to be the other sex, but as *H. analis* swarms everywhere and invariably has the characteristic notch, whereas *H. decipiens* is apparently exceedingly rare, it seems hardly possible that it can be regarded as the female, and, in this case, must stand as a separate species.

H. cavifrons, Sharp (*simillima*, Sharp (?), *Amischa cavifrons*, Muls. et Rey). The differences between this species and the small forms of *H. analis* are almost entirely sexual; the upper surface of the head in the male is very broadly and distinctly impressed, whereas in all specimens of *H. analis* it is convex; in this sex also the ventral plate of seventh segment is considerably produced, as in *H. soror*, and furnished in middle with a bunch of five or six distinct black hairs; according to Mulsant and Rey the male has the seventh dorsal segment of hind body broadly emarginate, while the female has it narrowly sinuate. Dr. Sharp (l.c. p. 177) says that in the female of *H. cavifrons* the notch of the seventh segment is broader and deeper than in specimens of *H. analis* of the same size, both sexes being furnished with the notch as in *H. analis*; the elytra are rather shorter in both sexes. L. $1\frac{3}{4}$ mm.

Found only in Scotland, in hilly districts, near Edinburgh and Thornhill.

H. simillima, Sharp. This species appears to be hardly distinct from *H. cavifrons*: it is similar in every way, and possesses the same sexual characters (depressed head in male, &c.), but is more unicolorous, more parallel, more densely and finely punctured, with flatter and more transverse thorax, and with the elytra slightly longer: I have Dr. Sharp's type specimens before me, and the differences seem exceedingly slight; there is far more difference between *H. analis* var. *major* and the type form; on the Continent *H. cavifrons* and *H. simillima* appear to be considered synonymous. L. $1\frac{3}{4}$ mm.

Only found on the banks of the Nith and its tributary Cairn Water by Dr. Sharp, under stones, in company with *Scopæus Erichsoni*.

H. soror, Kr. (*forcipata*, Muls. et Rey, *Amischa soror*, Muls. et Rey). This species very closely resembles *H. analis* v. *major* in colour and general appearance, but is distinguished by its more thickly and distinctly punctured hind body, and especially by the sexual characters; in the male the head is more or less distinctly channelled; the seventh dorsal segment has a larger notch, commencing on each side near the outside angle of the upper plate; the ventral plate is very much produced, and furnished at apex with five or six distinct black hairs in middle. L. 2 mm.

Marshy places; rare; Lee and Tonbridge, Kent; Barnes, Mickleham, Weybridge, Egham and Walton, Surrey; not hitherto recorded except from the London district.

GROUP 12.

This group contains five very small species, all less than 2 mm. in length; they are easily distinguished by their stout or very stout antennæ, and the impunctate sixth segment of hind body. *H. parallela* might perhaps be placed in a different group by reason of its different habitat and appearance, and the differently shaped antennæ.

H. exilis, Er. (*parasita*, Rey, *parilis*, Rey, *Meotica exilis*, Muls. et Rey). A pale-coloured little species, pitchy-brown, dull, with thick pubescence and extremely fine punctuation; head large, as broad or nearly as broad as thorax; antennæ short and stout, third joint not nearly as long as second, 5–10 very distinctly transverse, tenth joint twice as broad as long, eleventh large and broad, twice as long as tenth; thorax nearly as broad as elytra, sides nearly straight, a little narrowed behind; elytra a little longer than thorax, almost square; hind body with extremity testaceous, middle segments more or less pitchy, basal segments often lighter, punctuation extremely fine, scarcely visible towards apex; legs yellow. L. $1\frac{1}{2}$ – $1\frac{3}{4}$ mm.

Male with the seventh dorsal segment of hind body truncate and slightly sinuate, female with the same part slightly rounded; the differences, however, are very slight.

Marshy places, during early spring; very local; London district, generally; Hythe; Scarborough; Worcester (sandy banks of Severn). Scotland, local, Lowlands, Forth and Solway districts.

A variety occurs in the London district (Wimbledon, Esher, Lee, &c.) which is rather darker and narrower, with rather shorter antennæ, and less transverse thorax; this appears, in fact, to be much more common in the London district than the type form; the Scotch forms also vary in some degree.

H. pallens, Redt. (*indocilis*, Heer (?), *Meotica indocilis*, Muls. et Rey,

Sipalia tenuis, Muls. et Rey (?). This species might easily be mistaken for a small pale variety of the preceding; it is smaller, of a uniformly pale testaceous colour, segments 4-5 of hind body being sometimes slightly darker; the sculpture is even finer, and the elytra rather shorter; the differences, however, appear to be exceedingly slight; the sexual characters seem to be the same as in *H. exilis*, except that the seventh dorsal segment in male is "obtusely truncate" instead of "slightly sinuously truncate" (Muls. et Rey, Brévipennes, 1875, p. 90). L. $1\frac{1}{3}$ mm.

Very rare; on the banks of streams; only found hitherto in Scotland in the Forth, Tay, and Solway districts ("banks of Nith and Avon under stones in rather muddy places," Sharp).

The name *indocilis*, Heer, must be adopted instead of the name above used, if it is proved that Heer's and Redtenbacher's species are identical.

H. palleola, Er. (*Microdota (Hilara) palleola*, Muls. et Rey). Testaceous with the head fuscous, elytra darker than thorax, and the hind body darker before apex; in some specimens the contrast of the light and dark colour is much more pronounced than in others; the pubescence and punctuation are very fine; head large, nearly as broad as thorax; antennæ short and thick, third joint more slender and shorter than second, 5-10 each broader than the preceding and strongly transverse, eleventh large and broad, at least twice as long as tenth; thorax slightly narrower than elytra, transverse; elytra long, half as long again as thorax; hind body finely punctured towards base, smooth behind; legs yellow. L. $1\frac{1}{2}$ mm.

Male with the upper plate of seventh segment of hind body truncate.

In decaying fungi, dead leaves, &c.; rare; Reigate, Claygate Lane (Esher), Birch Wood, Darenth, Braxtead, Chatham, Dorking; appears to be rather generally distributed in the London district, but has not been found elsewhere; in France it occurs in forests in the gills of fungi that have not decayed.

H. validiuscula, Kr. (*Meotica validiuscula*, Muls. et Rey). This species is allied to the preceding, but is rather darker, and not so depressed or parallel; the head is narrower in proportion to the elytra, and the anterior parts of the body are more distinctly punctured and pubescent; it is also allied to *H. exilis*, but is stouter and broader, and less depressed, and more plainly sculptured; head rather large, round, black, and shining; antennæ stout, third joint shorter than second, fourth slightly transverse, 5-10 plainly transverse, tenth twice as broad as long, eleventh large twice as long as tenth; thorax broader than long, finely but distinctly punctured and pubescent, with an indistinct central channel behind; elytra a little longer than thorax, slightly transverse, finely, but distinctly, punctured; basal segments of hind body very finely punctured, apical ones smooth; legs yellow. L. $1\frac{1}{2}$ mm.

Male with a small fovea on middle of head, seventh segment of hind

body with ventral plate longer and narrower and more rounded at apex than in female.

In decaying fungi, dead leaves, &c.; Mickleham and Caterham, Surrey (Champion); Scotland, local, Tay and Forth districts (in numbers in a ditch among dead leaves in early spring on the Braid Hills, Edinburgh (Sharp).

The antennæ of this species are usually rather more obscurely testaceous towards apex than at base.

H. parallela, Mannh. (*talpa*, Heer, *Amidobia parallela*, Thoms.). This species, as remarked above, is in some points different from the others belonging to this group; it is rather like *H. analis*, but differs in the impunctate and shining extremity of the hind body and the shape of its head; it is black with the elytra brown and the apex of hind body testaceous; head rather large, rounded at sides, smooth and shining; antennæ rather longer than in the preceding species, yellowish, second joint longer than third, fourth nearly quadrate, 5–10 strongly transverse, eleventh not as long as the two preceding; thorax transverse, finely punctured; elytra rather longer than thorax, thickly and finely punctured; hind body with basal segments finely and indistinctly punctured, apical segments smooth; legs yellow. L. $1\frac{1}{2}$ mm.

Male with upper and lower plates of seventh segment of hind body more strongly rounded in the male than in the female.

Scotland; in nests of *Formica rufa* in the Tay and Dee districts; abundant in the large ants' nests at Rannoch and Braemar; it has also been taken at Scarborough by R. Lawson, and two specimens have been recorded from Wallasey, near Liverpool, by Dr. J. W. Ellis.

According to Mulsant and Rey the elytra in this species are a little shorter than the thorax; they appear to vary somewhat in length.

SECTION V.

Abdomen parallel; thorax distinctly or strongly transverse; penultimate joints of the antennæ not, or but moderately, transverse.

This section may be divided into the following three groups:—

13. Large species, with the thorax strongly punctured; penultimate joints of the antennæ transverse (p. 102).
14. Large species, with the penultimate joints of the antennæ not transverse (p. 104).
15. Moderately-sized, or small species, with the penultimate joints of the antennæ transverse (p. 106).

GROUP 13.

This group contains three or four species, of which one or two are somewhat doubtful. *H. brunnea*, Fab., and *H. depressa*, Gyll., are considered by several authors to be identical, but by others they are separated as distinct species; *H. hepatica* and *H. exarata* too are classed

in the latest European catalogue as synonymous, although the latter seems both in habitat and structure to be distinct from the former.

H. depressa, Gyll. (*Plataræa depressa*, Thoms. (*H. brunnea*, Fab. = *Plataræa brunnea*, Muls. et Rey?)). One of the largest and most conspicuous British species; rather flat and shining, brownish testaceous with the head and portion of hind body between base and apex more or less broadly black or dark-coloured; head rather small, diffusely punctured; antennæ dark with light base, rather long and comparatively slender, joints 2-3 of about equal length, fourth as long as broad, 5-10 nearly equal but more transverse in the female than in the male, eleventh joint as long as the two preceding together; thorax plainly narrower than elytra, slightly transverse, diffusely and distinctly punctured; elytra plainly longer and more closely punctured than thorax, usually darker about scutellum; hind body somewhat variable in colour, segments 2-4 more or less distinctly punctured, sixth almost impunctate; legs yellow. L. $3-4\frac{1}{2}$ mm.

Male with the sixth segment of hind body furnished in middle just before margin with a distinct raised tubercle, hind margin of seventh segment with four strong and distinct tubercular teeth.

In moss, dead leaves, &c.; often found on walls and palings, and also frequently by sweeping in early summer. I have taken it by sweeping in a wood near Lincoln in May or June, and in abundance on the rocky sides of a gravel-pit close to the town far from any trees; it is by no means an uncommon species throughout the country.

According to Mulsant and Rey *H. depressa* is exceedingly closely related to *H. brunnea*, but is distinguished by its antennæ being slightly longer, by the finer punctuation of the head and thorax, and by the latter being less transverse, and more evenly furrowed on its median line, also by the elytra being a little shorter, and a little more densely punctured, and above all by the sixth abdominal segment of male being without a tubercle; Thomson (Skand. Col. iii. 45, 46) briefly mentions the sexual differences of the male which, according to him, in *P. brunnea* has only two teeth on the sixth segment of the hind body instead of four; of *P. depressa* he says, "Male with the sixth dorsal segment of abdomen with a small tubercle at apex, seventh armed with four tubercles, those at the side being the larger." Dr. Sharp's type is certainly *depressa*, that is to say if Thomson is right, as it is impossible to tell which species or variety is meant by Gyllenhal or Erichson; if the male characters are really constant they would seem different species, but the whole question seems as yet to have been hardly settled.

H. hepatica, Er. (*major*, Aubé, *castaneipennis*, Fairm., *Liogluta* (*Hypnota*) *hepatica*, Er.). A fine large species of a dark reddish-brown colour with the elytra and sometimes thorax lighter, the apex of hind body testaceous, and the apex of the segments of the hind body sometimes lighter; head roundish, coarsely punctured; antennæ reddish, joints 1-3 elongate, 4-10 each a little broader and gradually more trans-

verse, 6–10 distinctly transverse, eleventh as long as the two preceding together; thorax nearly as broad as elytra, broader than long, with sides rounded in front and nearly straight behind, rather closely and distinctly punctured, and, together with elytra, clothed with rather thick yellowish pubescence; elytra plainly longer than thorax, distinctly punctured; hind body shining, segments 2–4 sparingly punctured, fifth more so, sixth nearly impunctate; legs yellow or reddish yellow. L. $4-4\frac{1}{2}$ mm.

Male with a raised longitudinal line nearly parallel to suture on each elytron, and with two raised lines converging behind on the upper surface of sixth segment of hind body; female with the posterior margin of lower surface of seventh segment excised in middle.

Rare, but has occurred singly or very sparingly in many localities; in moss, dead leaves, and other situations; also by sweeping; Greenhithe, Chatham, St. Mary Cray, Darenth Wood, Esher, Ashted, Caterham, Shirley, Cobham, Coombe Wood, Hampstead; Wimbledon Common (by beating willows); Highgate (on fences); in London (birds' nests); Studley, Ripon, Yorkshire (by sweeping bluebells).

H. exarata, Sharp. This species is certainly allied to the preceding, and, like it, the male has the raised fold on each elytron, but it appears to be distinct by its much smaller and narrower form, shorter and more slender antennæ, and shorter thorax; the elytra also are more coarsely sculptured; the appearance of the two insects is entirely different, one being large, broad, and robust, and the other slender and linear. L. $3\frac{1}{3}$ mm.

Very rare; in nests of *Formica fuliginosa*, Tilgate Forest (Power and Brewer); The Holt, Farnham (Power).

GROUP 14.

The species belonging to this group are in general appearance much allied to those of Group 5 (*H. luridipennis*, &c.), but differ by their more transverse thorax, shape of antennæ, and other points of structure; they seem, however, in their present position to be rather too widely separated from that group.

H. aquatica, Thoms. (*subanea*, Sharp, *Atheta aquatica*, Thoms.). Black, with the elytra chestnut brown or fuscous brown, anterior parts dull, hind body shining; head narrower than thorax, slightly brassy, finely and indistinctly punctured; antennæ rather long and slender, and scarcely thickened towards apex, black with reddish or yellowish-red base, joints 2–3 rather slender, of about equal length, fourth shorter than fifth, 5–10 each a little longer than broad, and each a little narrowed towards base, eleventh shorter than the two preceding together; thorax black, often with a rather distinct brassy reflection, broader than long, very finely punctured, with a broad impression in middle of base; elytra transverse, longer than thorax, distinctly punctured; hind body with segments 2–4 diffusely but distinctly punctured, 5–6 impunctate or nearly so; legs testaceous or dirty testaceous. L. $3-3\frac{1}{2}$ mm.

Male with the apex of seventh segment of hind body truncate and plainly crenulate.

Marshy places; at roots of grass, in moss, &c.; not uncommon, but rather local; London district generally; Tonbridge; Smallheath, Sutton Park, and Knowle, near Birmingham; Northumberland district; Scotland, common, Tweed, Solway, Tay, Forth, and Moray districts; Ireland, near Waterford.

Allied to *xanthoptera*, but easily distinguished by the darker antennæ of which the last joint is evidently shorter, the brassy reflection of head and thorax, and more strongly punctured elytra.

H. æneicollis, Sharp (*H. Pertyi*, Heer?). Closely allied to *H. xanthoptera*, but rather smaller and narrower; elytra paler and more distinctly marked with black; antennæ darker and not quite so long or stout, with apical joint not so long, although this is hardly perceptible as it bears the same relation to the two preceding ones as in *H. xanthoptera*. L. $3-3\frac{1}{2}$ mm.

In decaying fungi and other vegetable matter; generally distributed in the London district and other parts of the country, but very common in Scotland, where it is commoner than *H. xanthoptera*.

H. parisiensis, Bris. (*ovaria*, Kr., *cristata*, Mot., *aquatica*, Rey, nec Thoms.), is very closely allied to this species, but appears to be considered distinct from it; it seems a question whether all the described species belonging to this group are really distinct.

H. xanthoptera, Steph. (*castanoptera*, Mann., *Atheta merdaria*, Thoms.). Black, rather shining with the elytra more or less obscurely brownish testaceous; or castaneous, obscurely darker about scutellum, extremity of hind body sometimes yellowish; head black, narrower than thorax, finely and indistinctly punctured; antennæ long and rather slender and but little thickened towards apex, yellowish, a little darker towards extremity, last joint paler than preceding, joints 1-3 rather long, third longer than second, fourth as broad as third, longer than broad, fifth broader than fourth, 6-10 nearly equal, not transverse, eleventh very long nearly as long as the three preceding; thorax one-third broader than long, finely and rather closely punctured, with an indistinct impression in middle of base; elytra longer than thorax, rather closely and finely punctured and pubescent; hind body black and shining, segments 2-4 sparingly punctured, 5-6 almost impunctate; legs bright yellow. L. $3\frac{1}{3}-4$ mm.

Male with the hind margin of upper plate of seventh segment of hind body truncate and crenulate, the outer crenulations being the largest.

In decaying fungi and other vegetable refuse, especially in early autumn; one of the commonest of the British species; Dr. Sharp says that it is occasionally found at sap of trees.

H. incognita, Sharp. A very distinct, large, robust species, allied to the preceding, but usually larger and broader in proportion, the

thorax being evidently broader; it is more obscurely coloured, has the elytra more strongly punctured, and the fourth joint of the antennæ longer; the antennæ themselves are longer, and in the male rather more thickened towards apex; besides this the apex of the upper plate of seventh segment of male is hardly visibly crenulate; this latter point will also serve to distinguish it from *H. valida*, from which it may, moreover, be separated by its more obscure colour, paler antennæ, and less coarsely punctured elytra. L. 4 mm.

A Scotch species, not common in Highland districts; found about decaying branches of Scotch fir, &c.; Solway, Forth, Tay, Dee, and Moray districts. In Dr. Power's collection there is a specimen from Lee Valley, North Devon, labelled "*incognita*, var.," which certainly appears to belong to this species.

H. valida, Kr. (*convexa*, J. Sahlb., *robusta*, Muls. et Rey). A large robust species, black, with the elytra shining brown; head shining, finely and sparingly punctured; antennæ pitchy with the three basal joints reddish yellow, rather long and stout, slightly thickened towards the apex, third joint rather longer than second, 4-10 each slightly broader than the preceding, in male each longer than broad, in female about as long as broad, eleventh joint pointed rather longer than the two preceding; thorax nearly half as broad again as long, finely and somewhat diffusely punctured, with a broad shallow impression in middle of base, and sometimes an indistinct channel; elytra longer than thorax, strongly and closely punctured and pubescent; hind body with apex obscurely paler, segments 2-4 sparingly punctured, 5-6 impunctate or nearly so; legs yellow. L. 4-4½ mm.

Male with the upper plate of seventh segment of hind body crenulate, and sometimes slightly emarginate.

In vegetable refuse; rare; Northumberland district, Gosforth, three specimens. Scotland, Solway, Forth, and Moray districts (Thornhill, Edinburgh, and Strath Cannich); Ireland, summit of Slieve Donard, co. Down (Champion).

GROUP 15.

This is a very artificial group, and contains no less than twenty-three species, varying very much in size, appearance, and habitat; they are distinguished from the preceding group by having the penultimate joints of the antennæ transverse. *H. euryptera*, Steph. (*succicola*, Thoms.), and *H. diversa* are the largest, being about the size of small specimens of *H. xanthoptera*, whereas *H. palustris* (small specimens), *H. corvina*, *H. puberula*, and *H. clancula* (*atrata*) are only about 2 mm. in length, and *H. atomaria* and *H. perexigua* are only 1½ mm. and 1 mm. respectively; the remaining species vary from 2½-3 mm.

H. euryptera, Steph. (*succicola*, Thoms. et auct., *validicornis*, Maerk., *Atheta succicola*, Thoms.). This species bears rather a strong relation to *H. xanthoptera*, but is broader and stouter, and is easily distinguished by the stouter, shorter, and darker antennæ, of which the penultimate joints are transverse; head narrower than thorax, finely

and sparingly punctured; thorax half as broad again as long, a little narrowed in front, rather finely and not closely punctured, with a more or less distinct impression in middle of base; elytra longer than thorax, brownish, rather closely and finely punctured; hind body black and shining, segments 2-4 sparingly but plainly punctured, 5-6 impunctate or nearly so; legs yellow. L. $3\frac{1}{3}$ - $3\frac{1}{2}$ mm.

Male with the apex of upper plate of seventh segment of hind body truncate, and crenulate, the crenulations being more in number than in the *xanthoptera* group.

At sap of trees, in decaying fungi, dead leaves, &c.; rather common throughout the country. Scotland, common, Solway, Forth, Dee, and probably other districts.

H. trinotata, Kr. (*Atheta socialis*, Thoms.). A very common and distinct species, black, with yellowish elytra, which have a dark, more or less well defined, triangular patch at scutellum, and another one each side at apical angle; head black, finely and indistinctly punctured, antennæ black or pitchy with lighter base, slightly thickened towards apex, joints 1-3 moderately long, fourth broader than third, 5-10 distinctly transverse, eleventh stout, as long as the two preceding together; thorax half as broad again as long, with sides nearly straight, gently rounded in front, finely and not closely punctured, with an indistinct impression in middle of base; elytra fully a third longer than thorax, finely and rather closely punctured; hind body shining, segments 2-4 finely and rather closely punctured, fifth distinctly but more sparingly, sixth very sparingly punctured; legs yellow. L. 3 mm.

Male with the posterior margin of seventh segment of hind body finely crenulate, the crenulations being terminated on each side by a small sharp tooth.

In haystack refuse, decaying sea-weed, dung-heaps, &c.; especially fond of foul straw; abundant throughout the kingdom.

H. hybrida, Sharp. Closely allied to the preceding; the colour, however, is not so well marked, the black being pitchy, and the elytra obscure yellow with the markings indistinct; the antennæ are more slender, and less thickened towards apex, with the terminal joint longer and more pointed; the male characters also are different; in that sex the penultimate joint of the antennæ is plainly longer than in the female, being about as long as broad, and the seventh dorsal segment of the hind body has the hind margin non-crenulate; from *H. xanthopus* it may be separated by its shorter and more transverse thorax, broader and less parallel form, and the male characters. L. 3 mm.

Very rare; Edinburgh (Sharp).

H. xanthopus, Thoms. (*sublinearis*, Kr., *subrecta*, Muls. et Rey (?), *Atheta xanthopus*, Thoms.). A pretty and brightly coloured species, more parallel and narrower than the two preceding, to which it bears some resemblance; the colour is black with the elytra yellow marked with three rather

distinct patches, one triangular at scutellum, and one on each side near outer angle; head rather large, rounded behind eyes, rather indistinctly and not closely punctured; antennæ rather long and stout, pitchy with basal joints yellow, joints 2-3 equal, fourth small, fifth broader than fourth, 5-10 transverse but not strongly so, eleventh pointed as long as the two preceding together; thorax nearly as broad as elytra, plainly broader than long, indistinctly sculptured; elytra longer than thorax, distinctly and moderately closely punctured; hind body black and shining, segments 2-4 sparingly punctured, fifth very sparingly punctured, sixth nearly impunctate; legs yellow. L. 3 mm.

Male with the dorsal plate of seventh segment of hind body truncate and crenulate, female with the dorsal and ventral plates of the same segment very obsoletely emarginate.

In moss, &c.; occasionally in sandpits; not common; Cobham, Caterham, Shirley, Charlton, Reigate, Woking, Kilburn, Hampstead, Hythe, St. Mary Cray, Southend; Isle of Wight; Doniford, Somerset; Yardley, Sutton Park, and Knowle, near Birmingham; Needwood Forest, near Burton-on-Trent; Northumberland district, rare, Gosforth and Hartley. Scotland, scarce, Solway district only.

H. triangulum, Kr. Allied to *trinotata*, but larger and darker, more parallel, and with the thorax more developed; the last joint of the antennæ is longer, and the triangular patch round scutellum more developed and more distinct; the antennæ also are entirely black; the head is narrower than the thorax, finely and indistinctly punctured; antennæ rather long and stout with penultimate joints transverse, but not strongly so; thorax a third broader than long, finely and somewhat closely punctured, strongly alutaceous between the punctures; elytra testaceous with a large dark, well-defined patch at scutellum, and another on each side at apical angles extending more or less towards base, distinctly punctured; hind body shining, with segments 2-4 sparingly punctured, fifth very sparingly, sixth impunctate or nearly so; legs fusco-testaceous, femora pitchy. L. 3-3½ mm.

Male with the apex of dorsal plate of seventh segment of hind body truncate and crenulate, the outer crenulations being more distinct, female with the apex of dorsal and ventral plates of the same segment very feebly emarginate.

In decaying sea-weed, haystack refuse, &c.; also at sap of trees; not uncommon in the London district; Tonbridge; Margate; Hastings; Knowle, near Birmingham, under bones; Repton, Burton-on-Trent; Wallasey near Liverpool; English Lake district; not recorded from the Northumberland district or from Scotland.

H. fungicola, Thoms. (*nitidicollis*, Fairm., *Atheta fungicola*, Thoms.). A variable species; black or pitchy black, with the fore parts dull, and the elytra brown; head narrower than thorax, broad and short, finely and not closely punctured; antennæ rather stout, dark, with basal joints lighter, third joint plainly longer than second, slender in female, stout in male, fourth joint small, fifth broader than fourth, 5-10 distinctly but not strongly transverse, eleventh pointed as long as the two preceding together; thorax about as broad as elytra, half as broad again as long,

sometimes with an indistinct central channel, rather closely and distinctly punctured; elytra one-third longer than thorax, thickly punctured, closely pubescent; hind body black and shining, sometimes with apex of segments and extremity yellowish, segments 2-4 finely and not closely punctured, fifth sparingly punctured, sixth impunctate; legs yellow. L. 3 mm.

Male with upper plate of seventh segment of hind body truncate and finely crenulate, the crenulations being terminated on each side by a more distinct tubercle; ventral plate more produced and narrower than in female; female with the ventral plate broad at margin and gently rounded, but a variety occurs rarely in which it is distinctly and rather deeply excised.

Among dead leaves, at sap of felled trees, in decaying fungi (especially in autumn), &c.; abundant throughout the kingdom.

H. ignobilis, Sharp. Allied to *H. fungicola*, and included under it as synonymous by some continental authorities; it is, however, a little larger and darker, and not so flat, with the front parts not so dull, the base of the antennæ dark, and the head narrower; the thighs are pitchy, and the tibiæ pitchy testaceous; the male characters are much as in *H. fungicola*, but the ventral plate of the seventh segment of hind body in the female has the hind margin fringed with closely set, parallel cilia, and is in the middle distinctly excised. L. 3 mm.

In decaying fungi, &c.; not common; Sevenoaks, Loughton, Darenth Wood, Shirley, Putney, Dorking, Mickleham, Caterham, St. Mary Cray, Croydon, Lee, Dulwich; Tonbridge; Hastings; Knowle and Yardley, near Birmingham; Manchester; Northumberland district, Gosforth, Wallington, &c.; Scotland, local, Forth and Solway districts.

H. diversa, Sharp. Allied to *H. succicola* but not quite so shining, with darker elytra, and differently formed antennæ, the fourth joint not being transverse, the following ones narrower, and the eleventh joint much shorter than in that species; head much narrower than thorax, generally with a small fovea; thorax nearly half as broad again as long, with a more or less distinct central channel, finely and not closely punctured; elytra longer than thorax, pitchy brown, rather closely and distinctly punctured; hind body shining, segments 2-4 finely and sparingly punctured, fifth very sparingly punctured, sixth impunctate or nearly so; legs testaceous. L. $3\frac{1}{3}$ mm.

Male with the hind margin of seventh segment of hind body truncate and finely crenulate, with a distinct tubercle on each side.

From *H. fungicola* this species may be distinguished by its larger size, darker colour, less parallel form, and differently formed antennæ.

Found only in Scotland in the Solway, Tay, and Dee districts; apparently not uncommon at Raunoch.

H. boletobia, Thoms. (*nigritula*, Grav. nec Gyll., *pubescens*, Heer, *Homalota* (*Tetropla*) *nigritula*, Muls. et Rey, *Atheta boletobia*, Thoms.).

Black or pitchy with the elytra and apex of hind body testaceous, the former with obscure dark markings at scutellum and at hinder angles; form rather short and broad; head broad and short, shining, finely and indistinctly punctured; antennæ short, a little thickened towards apex, pitchy, with paler base, fourth joint small, 5–10 distinctly transverse, eleventh rather long, nearly twice as long as tenth; thorax often pitchy, nearly as broad as elytra, very transverse, rather finely and not closely punctured, with an indistinct impression at base, or central channel; elytra longer than thorax, rather distinctly punctured; hind body with segments 2–4 distinctly but not closely punctured, fifth punctured at base smooth at apex, sixth impunctate; legs yellow. L. $2\frac{2}{3}$ mm.

Male with the posterior margin of seventh segment of hind body truncate, with four blunt obsolete teeth.

A southern species as a rule; local and not very common; in decaying fungi, &c.; London district generally; Tonbridge; Knowle, near Birmingham; Repton, near Burton-on-Trent; I can find no record from further north.

H. liturata, Steph. (*nigritula*, Gyll. nec Grav., *Gravenhorsti*, Kr.). Pitchy black or pitchy testaceous with the head and more or less of the hind body before apex dark, and the elytra and apex of hind body always testaceous; head narrower than thorax, finely and indistinctly punctured; antennæ rather short and stout, yellow, joints 2–3 of about equal length, 4–10 short, the latter very transverse, eleventh long, as long as the two preceding together; thorax strongly transverse, twice as broad as long, finely punctured, with or without a central furrow; elytra half as long again as thorax, finely and densely punctured; hind body with segments 2–4 finely but not very closely punctured, 5–6 impunctate or nearly so; legs pale yellow. L. $2\frac{1}{2}$ mm.

Male with a semicircular incision in middle of hind margin of dorsal plate of seventh segment of hind body, with the margin thickened, and a raised line outside on each side terminating in a slight projection at each outer angle.

Very local; in fungi; Cambridge Fens, abundant (Crotch); Tonbridge (Horner); Tewkesbury (Blatch).

H. coriaria, Kr. A rather broad and convex species; black, shining, occasionally partly obscurely piceous, with the elytra brown; head rather broad, but narrower than thorax, finely punctured, rounded behind eyes; antennæ blackish, with base lighter, rather stout and short, a little thickened towards apex, joints 2–3 of equal length, fourth small not quite so long as broad, 5–10 transverse, but not strongly so, eleventh as long as the two preceding; thorax strongly transverse, twice as broad as long, narrower in front than behind, very finely punctured, in female with a small fovea in front of scutellum, in male more or less distinctly impressed in middle; elytra longer than thorax, finely and closely punctured; hind body shining, segments 2–4 sparingly, fifth very

sparingly, punctured, sixth almost impunctate; legs yellow, sometimes a little pitchy. L. $2\frac{2}{3}$ mm.

Male with the upper plate of seventh segment of hind body with a notch on middle of hind margin, lateral margin on each side produced into a small tooth; third and fourth joints of antennæ strongly ciliated, and thorax impressed in middle.

At sap of felled trees; also in cut grass, moss, &c.; occasionally in sandpits; not common; Mickleham, Darenth Wood, Weybridge, West Wickham, Sittingbourne, Shirley; Littleington and Hurst, Sussex; Winchester; Knowle, near Birmingham; Repton, Burton-on-Trent; also recorded from Manchester in fungi, but this may be in error as its habitat is usually different; Scotland, local, Solway district only; Thornhill (Sharp).

H. sodalis, Er. (*incisa*, Muls. et Rey, *Atheta sodalis*, Thoms.). Rather like the preceding, but larger; somewhat convex, rather shining, black with the elytra obscurely brownish, or nearly black; head rather small, finely and indistinctly punctured; antennæ somewhat stout, thickened towards apex, pitchy with paler base, joints 2–3 nearly equal, fourth about as long as broad, 5–10 gradually more distinctly transverse, eleventh as long as the two preceding together; thorax transverse, but not so plainly as in the preceding species, narrowed in front, distinctly and not finely punctured, with a broad obsolete impression in front of scutellum, sometimes appearing double; elytra longer than thorax, thickly and plainly punctured and pubescent; hind body shining, segments 2–4 distinctly but not thickly punctured, 5–6 nearly impunctate; legs reddish yellow. L. 3 mm.

Male with the hind margin of upper plate of seventh segment emarginate and very obsoletely crenulate.

In decaying fungi, dead leaves, moss, &c.; sometimes at sap; not uncommon; London district generally; Tonbridge; Birmingham district; Bewdley; Needwood; Manchester; Northumberland district; Scotland, local, Forth, Dee, Solway, and probably other districts.

H. humeralis, Kr. (*fennica*, J. Sahlb., *Atheta pallidicornis*, Thoms., *Homalota (Mycota) humeralis*, Muls. et Rey). Very like *H. sodalis* but differs, according to Mulsant and Rey, in being generally darker, except as regards legs; in this respect, however, it must be variable, as Dr. Sharp (Ent. Mo. Mag. viii. 247), comparing it with *H. sodalis*, speaks of it as "smaller, with paler elytra and antennæ," and his single specimen certainly presents these characters in a marked degree; the antennæ are decidedly shorter with the fifth to the tenth joints more strongly transverse; the elytra are shorter, and the hind body is even more sparingly punctured; in the male the hind margin of the upper plate of seventh segment of hind body is scarcely sinuate, and finely and obsoletely crenulate, the outside crenulations being the strongest. L. $2\frac{1}{2}$ mm.

Very rare; Cirencester (McNab); Winchester (Horner): in France this species occurs rarely among dead leaves and in old faggots on which there is fungoid growth.

H. clancula, Er. (*atrata*, Kr. (? Mann.), *Dochmonota funebris*, Thoms., *Dochmonota atrata*, Muls. et Rey). Allied to *gagatina*, but rather smaller, shorter, and broader with the hind body thickly and finely punctured over the whole upper surface; the form of the species is short and compact, and somewhat resembles that of a *Gyrophæna*; the colour is black with the elytra obscure brown; head finely and thickly punctured; antennæ slightly thickened towards apex, third joint oblong plainly shorter and more slender than second, fourth joint rather strongly, 5–10 strongly, transverse; thorax much broader than long with sides rather strongly rounded, thickly and finely punctured, with an obsolete central furrow; elytra longer than thorax, broader than long, finely, thickly, and slightly rugosely punctured; hind body with all the segments finely, thickly, and almost uniformly punctured; legs clear yellow. L. 2 mm.

Male characters apparently obscure.

Very rare; in a marshy place near Lee, Kent, in flood refuse, during early spring (Champion): rare in France in damp forests, among dead leaves.

H. gagatina, Baudi (*variabilis*, Kr., *proxima*, Kr., *mutata*, Fairm., *Atheta compressicollis*, Thoms., sub-gen. *Alaobia*, Muls. et Rey). Rather convex, thickly pubescent, and rather dull in consequence, black, with the elytra brownish or pitchy brown; head moderately broad, much narrower than thorax, finely punctured; antennæ rather slender, a little thickened towards apex, pitchy black with basal joints yellow or yellowish, joints 2–3 about equal, 4–6 about as long as broad, 7–10 slightly transverse, eleventh as long as the two preceding together; thorax very little narrower than elytra, half as broad again as long, narrower in front than behind, finely and rather closely punctured, very indistinctly impressed in front of scutellum; elytra plainly longer than thorax, finely and closely punctured; hind body black with extremity sometimes paler, segments 2–4 distinctly and moderately closely punctured, fifth sparingly punctured, sixth nearly impunctate, segments 5–6 rather shining; legs yellow, sometimes more or less pitchy. L. $2\frac{1}{2}$ mm.

Male with the hind margin of dorsal plate of seventh segment of hind body furnished with a slightly emarginate or bidentate plate, flanked on each side by a long tooth, each of these separated from the central plate by a very deep notch.

In fungi, dead leaves, &c.; generally distributed and not uncommon, although somewhat local, in the South and Midland districts; rarer further north; Northumberland district, rare; Scotland, not common, Solway and Moray districts; the northern specimens are larger and darker.

The male is easy to distinguish, but the female rather closely resembles *H. fungicola*.

H. divisa, Maerk. (*impressicollis*, Muls. et Rey, *Atheta aridula*, Thoms., *Microdota divisa*, Muls. et Rey, sub-gen. *Traumæcia*, Rey,

teste H. R. W.). A rather broad, elongate, parallel, flat species, distinguished by the strongly channelled head and thorax in male, and the comparatively elongate eleventh joint of the antennæ in both sexes; black, anterior parts dull, elytra fuscous, or dark yellowish brown; head subquadrate, plainly channelled in male, finely punctured; antennæ rather slender, fuscous with lighter base, third joint not quite so long as second, fourth rather small about as long as broad, 5-10 slightly transverse, eleventh proportionally long about three times as long as tenth; thorax distinctly transverse, rounded in front, finely and closely punctured, channelled, the channel in the male being entire, in the female more or less abbreviated in front; elytra plainly longer than thorax, finely and rather thickly punctured; hind body with segments 2-4 finely, and rather closely, punctured, fifth more sparingly punctured, sixth nearly impunctate; legs light yellow. L. $2\frac{1}{2}$ mm.

Male as above, with the dorsal plate of seventh segment of hind body with thickened margin, feebly emarginate and very obsoletely crenulate; female with forehead and thorax rather finely ciliated on their central line.

In fungi, moss, dead leaves, dead animals, &c.; rather widely distributed, but rare; Darenth Wood, St. Mary Cray, Gravesend, Wootton, Tonbridge, Richmond, Weybridge, Mickleham, Putney, Esher, Shirley, Tilgate Forest; Deal; Hastings; Winchester; Birmingham district (under bones, &c.); Bewdley Forest; Manchester; Holy Island (J. J. Walker). Scotland, local, Forth and Solway districts; Ireland, near Waterford (Power).

H. nigricornis, Thoms. (*Thomsoni*, Jans., *Atheta nigricornis*, Thoms., *Traumœcia nigricornis*, Muls. et Rey). Allied to *H. divisa*, but distinguished by its somewhat broader form, especially in female, and darker colour, especially of the elytra, and also by the shorter last joint of antennæ; black, with elytra fuscous black, finely and indistinctly punctured, head finely punctured, in male more or less depressed, but not channelled; antennæ rather long, slightly thickened towards apex, black, with the basal joint pitchy, joints 2-3 about equal, fourth about as long as broad, fifth slightly, 6-10 evidently transverse, eleventh nearly twice as long as tenth, thorax about half as broad again as long, with sides rounded in front, and scarcely narrowed behind, male with a broad depression on disc, female sometimes, but not always, with an abbreviated channel before scutellum; elytra longer than thorax, finely and closely punctured; hind body with segments 2-4 finely and moderately thickly punctured, fifth segment very sparingly and finely punctured, sixth nearly impunctate; legs pitchy yellow, femora darker than tibiæ. L. $2\frac{1}{2}$ mm.

Male with the posterior margin of the dorsal plate of the seventh abdominal segment slightly excavated.

At sap of felled trees, in vegetable refuse, fungi, &c.; not uncommon, but local and not abundant; Darenth Wood, Shirley, Esher, Weybridge, Richmond Park, Mickleham, Streatham (in *Cossus*-burrows); Tonbridge; Glanvilles Wotton; New

Forest; Exmouth; Birmingham district; Northumberland district, rare; Scotland, rare, Solway district.

H. ravilla, Er. (*Atheta angusticollis*, Thoms. ♀, *Atheta ravilla*, Thoms., *Homalota* (*Dimetrota*) *ravilla*, Muls. et Rey, sub-gen. *Philhygra*, Rey, teste H. R. W.). Rather narrow and elongate, black with the elytra fuscous; very like the preceding, but distinguished by the less transverse penultimate joints of the antennæ in the male, and by the thorax in that sex being not broadly depressed but more or less obsoletely channelled; in the female the disc is smooth; the antennæ are black or pitchy black with the basal joint lighter; the head is rather large, scarcely narrower than thorax, with sides straight behind the eyes and then rounded at posterior angles; the punctuation of thorax is less dense and fine than that of elytra; hind body much as in the preceding species; legs pitchy testaceous, femora darker. L. $2\frac{2}{3}$ mm.

Male with the hind margin of dorsal plate of seventh segment of hind body obsoletely emarginate.

In dead leaves, fungi, vegetable refuse, &c.; local; Chatham, Bexley, Mickleham, Croydon, Richmond Park, Esher, Cobham, Tilgate Forest; New Forest; Yardley and Knowle, near Birmingham; Hopwas Wood, Tamworth (dead animals); Sherwood Forest; Manchester; Northumberland district, rare; Scotland, common, Solway, Forth, Tay, Dee, and Moray districts; Ireland, near Waterford (Power).

It seems now to be agreed that *H. ravilla* and *H. angusticollis* are synonymous; it used to be considered that *H. ravilla* was distinct by having the terminal joint of the antennæ longer.

H. palustris, Kies. (*currens*, Woll., *Atheta brunnipes*, Thoms., *Microdota* (*Philhygra*) *palustris*, Muls. et Rey). Allied to the preceding, but distinguished from it by its more shining appearance, broader thorax, shorter elytra, and the male characters; black, shining, with the elytra obscurely brown; head slightly narrower than thorax, indistinctly punctured; antennæ rather slender, pitchy or pitchy black with base sometimes obscurely paler, third joint not quite so long as second, fourth smaller than fifth, 6–10 each a little broader than long, eleventh about twice as long as the preceding; thorax broader than long, very finely and not closely punctured, and extremely finely pubescent; elytra longer than thorax, sometimes almost black, finely and closely punctured; hind body black and shining, segments 2–4 finely and moderately closely punctured, fifth very finely and sparingly punctured, sixth almost impunctate; legs yellow, somewhat infusate. L. $2-2\frac{1}{2}$ mm.

Male with the hind margin of dorsal plate of seventh segment of hind body distinctly emarginate.

In haystack refuse, dung, fungi, &c.; often near banks of streams; moderately common throughout the greater part of England and Scotland; it has not been recorded from the Northumberland district, but probably occurs.

H. corvina, Thoms. (*lepida*, Kr., *Atheta corvina*, Thoms., *Anopleta lepida*, Muls. et Rey). This is a small dark species, black, with the elytra

also black or pitchy black; it is distinguished by its large and rather long head, which in the male has a deep longitudinal channel along its whole length, and in the female a short impression in middle behind antennæ; the antennæ are black, with the basal joint pitchy, third joint not so long as second, fourth smaller than any others, 5-10 distinctly transverse, tenth longer and plainly less transverse than ninth, eleventh rather short and stout, only about half as long again as tenth; thorax very plainly narrower than elytra, scarcely a third broader than long, finely, but somewhat roughly sculptured, in male with a large fovea in middle, in female indistinctly channelled before scutellum; elytra half as long again as thorax, finely and rather closely punctured; hind body shining, segments 2-4 sparingly punctured, 5-6 nearly impunctate; legs pitchy or pitchy testaceous. L. $1\frac{3}{4}$ -2 mm.

Male with the seventh segment of hind body narrower than in female, and the apex of its dorsal plate a little truncate, third joint of antennæ stouter.

In decaying fungi, vegetable refuse, &c., especially in the autumn; very local, but occasionally common; Ashted, Esher, Mickleham, Weybridge, Richmond Park; Loughton; Tonbridge Wells; New Forest; Sutton Park, Birmingham; Sherwood Forest; Northumberland district, rare and local; Scotland, scarce, Solway, Forth, and Dee districts.

H. puberula, Sharp (sub-gen. *Anopleta*, Rey). Allied to the preceding, and about the size of that species, but differs in being more parallel, and especially in having the thorax distinctly broader, very nearly as broad as the elytra; the anterior parts of the body are also much more finely and sparingly punctured; head rather broad, flat and shining, slightly channelled in male; antennæ black, rather long proportionally, third joint shorter than second, 4-10 each slightly broader than the preceding, each a little transverse and a little narrowed to base, eleventh joint not twice as long as tenth; thorax nearly as broad as elytra, more than half as broad again as long, very finely and sparingly punctured, with a deep impression on disc in male; elytra black, or pitchy, much longer than thorax, finely and not closely punctured; abdomen black and shining, pubescent, sparingly punctured in front, impunctate, or nearly so, behind; legs yellowish, slightly infusate, or dirty yellow. L. 2 mm.

Male with dorsal plate of seventh segment of hind body broad and truncate, and crenulate.

Very rare; in dead leaves, and perhaps fungi; September and October; Mickleham, Surrey (Power and Sharp); Caterham, Surrey (Champion), one specimen by brushing herbage; Watermouth, North Devon (Power).

H. atomaria, Kr. (*glabricula*, Thoms., *minuscule*, Bris., *Ouralia atomaria*, Muls. et Rey). A very small, narrow, black, and very shining species, with punctuation and pubescence scarcely visible; head a little narrower than thorax; antennæ black, base sometimes pitchy, a little thickened towards apex, third joint shorter and more slender than

second, 4–10 transverse, eleventh nearly twice as long as tenth ; thorax nearly as broad as elytra, not very transverse, with a small obsolete impression in middle of base ; elytra black, or sometimes pitchy, extremely finely punctured ; hind body black and shining, broader at apex, and narrowed gradually to base, very sparingly punctured ; legs pitchy. L. $1\frac{1}{3}$ mm.

Sexual characters obscure, except that the male has the seventh segment of hind body narrower.

In cut grass, dead leaves, &c.; rare ; Sanderstead, Peckham, Ashted, and Mickleham, Surrey ; Birdbrook, Essex ; New Forest ; Scotland, rare, Solway and Dee districts ; it probably occurs in intervening localities, and is very likely overlooked by reason of its minute size.

H. perexigua, Sharp. Very closely allied to the preceding ; it is, however, as Dr. Sharp (l.c. p. 215) remarks, still smaller and more fragile, with the thorax less transverse, and more distinctly narrower than the elytra ; the antennæ are evidently thinner, but, as they are similarly formed, the intermediate joints are less transverse ; the male has the seventh segment of hind body narrower than the female, with the ventral plate narrow, a little produced, and with hind margin rounded. L. 1 mm.

In dead leaves, flood refuse, &c. ; very rare ; London district (Sharp) ; Tonbridge (Horner) ; Walton-on-Thames (Champion) ; Sheerness (J. J. Walker).

SECTION VI.

Hind body parallel ; thorax strongly transverse ; penultimate joints of the antennæ strongly transverse.

This section may be divided into the following two groups :—

16. Moderately-sized species, or not very small species (p. 116).
17. Very small species, none exceeding 2 mm. in length, and usually less (p. 119).

GROUP 16.

This group contains several well-marked species, which differ considerably in colour and size ; the male characters are very peculiar and pronounced ; Dr. Sharp includes *H. cinnamomea* and *H. hospita* in this group, but the abdomen in these species is so evidently narrowed to apex that it is better to separate them, more especially as they are considered a very distinct genus (*Thamiaræa*) by Thomson and other authorities, far removed from *Homalota* : I have now placed these two species as a separate genus just before *H. flavipes*, *confusa*, and *anceps*, to the first two of which they bear a somewhat close relation ; they are placed near these by Mulsant and Rey and other continental authorities, and it seems hardly right to separate them more widely than is possible.

H. scapularis, Sahlb. (*ochracea*, Er., *Alaobia scapularis*, Thoms.).

Rufo-testaceous with the head and the fourth and fifth segments of hind body blackish, pubescence well marked and coarse; head roundish, rather small, together with thorax rather finely and moderately closely punctured; antennæ yellow at base, darker towards apex, somewhat thickened towards extremity, third joint as long and as thick as second, fourth about as long as broad, 5-10 plainly transverse, eleventh about as long as the two preceding; thorax convex, nearly twice as broad as long, narrowed in front; elytra longer than thorax, closely and rather strongly punctured; hind body with segments 2-4 rather strongly and closely punctured, fifth more sparingly punctured, sixth almost impunctate; legs yellow. L. $2\frac{2}{3}$ -3 mm.

Male with the hind margin of dorsal plate of seventh segment of hind body armed with four teeth, the middle ones stout, short, and rounded, the outer ones slender and pointed.

In moss, fungi, &c.; occasionally by evening sweeping; rather scarce; Monk's Wood, Weybridge, Mickleham, Croydon, Darenth Wood, Esher, Chatham, Strood; Glauvilles Wootton; Tonbridge; The Holt, Farnham; Hastings; Folkestone; Brighton; Scotland, Tay district, Aviemore (Champion).

H. subterranea, Muls. et Rey (sub-gen. *Aluobia*, Muls. et Rey). Allied to the preceding, and coloured in the same way, but smaller and narrower, a little more shining, less pubescent, and less thickly and more finely punctured; the antennæ are a little more thickened towards apex, and have the third joint more slender, and the penultimate shorter; the head and thorax are smoother, and the thorax is plainly less narrowed in front, and is almost as broad as the elytra; the elytra are a little shorter in proportion, and the hind body is a little less punctured; legs yellow. L. $2\frac{2}{3}$ mm.

Male with the hind margin of the dorsal plate of seventh segment of hind body furnished with four strong teeth of nearly equal length, the inner ones rounded, the outer more pointed.

Very rare; Scotland only; Beaulieu in Inverness-shire (Crotch); Forres (Hislop); according to Dr. Sharp it is found among moss and dead leaves; it occurs in Provence near Hyères, according to Mulsant and Rey, in April, under stones, in company with a species of testaceous ant of the genus *Atta*, and is sometimes found at a depth of four inches below the surface of the ground.

H. dilaticornis, Kr. (*Ceritara dilaticornis*, Muls. et Rey). Rufous or rufo-testaceous, with the head, and the hind body, except apex, and more or less of the extreme base, dark; the elytra also have the apical angles more or less infusate; from *H. scapularis* it may at once be separated by its smaller size, less robust form, differently shaped head, and narrower thorax; it rather closely resembles *H. subterranea*, but may be distinguished by the shape of its head, narrower thorax, rather less robust form, and the male characters; the upper surface is finely punctured and delicately pubescent; the head presents a peculiar shape through being strongly narrowed behind eyes; the antennæ are considerably thickened towards apex, with joints 2-3 of about equal

length, fourth small but transverse, 5–10 strongly transverse, eleventh as long as the two preceding; thorax plainly narrower than elytra, slightly narrowed in front; elytra slightly longer than thorax; hind body with segments 2–4 finely and sparingly punctured, 5–6 nearly smooth; legs yellow. L. $2\frac{1}{2}$ mm.

Male characters very peculiar; seventh segment of hind body with dorsal plate a little produced behind in middle, with a notch in middle of hind margin, the edge of which is thickened; a little before the hind margin, close to the outside is to be seen on each side a distinct raised tubercle; the lateral margin of the segment is on each side produced into a slender and indistinct spine, not reaching so far back as the produced middle part of segment.

In moss, &c.; very rare; Mickleham (Champion and Power); Caterham (Champion).

II. testaceipes, Heer (*brevicollis*, Baudi, *varicornis*, Kr., *Saundersi*, Rye, *Ceritaxa testaceipes*, Heer). Rather shining, finely punctured, and pubescent, black, with the elytra testaceous, the lateral margins and sometimes a patch at scutellum being obscurely darker; the species is flatter, broader, and darker in colour than the two preceding; head rather broad, black and shining; antennæ short, and very stout, blackish, paler at base, third joint nearly as long as second, fourth small, but transverse, 5–10 strongly transverse, eleventh pointed, as long as the two preceding; thorax nearly as broad as elytra, about twice as broad as long, not much narrowed in front; elytra longer than thorax, finely but rather distinctly punctured; hind body black and shining, segments 2–4 sparingly and finely punctured, fifth very sparingly punctured, sixth nearly impunctate; legs yellow. L. $2\frac{1}{2}$ mm.

Male with hind margin of dorsal plate of seventh segment of hind body furnished on each side with a very slender spine, curved on its interior side towards apex, and in the middle with two teeth, blunt and broad at apex, not so far prolonged as the lateral spines, and separated by a strong deep excision.

Sandy and chalky places; in moss, &c.; rare; Reigate, Egham, Walton-on-Thames, Sanderstead, Chatham, Mickleham, Esher, Croydon, Faversham, Staines; Littleington, Sussex; Scotland, Tay district, Braemar (Champion); in France it appears to be widely distributed and not uncommon in vegetable refuse, dry dung, and carcasses of small animals.

II. oblita, Er. (*longula*, Fairm., *Homalota (Alaobia) oblita*, Muls. et Rey). Black, rather dull, with the elytra brownish or fuscous, and the apex of hind body sometimes yellowish; a small and obscure species with short stout antennæ; head broad, rather closely, but very finely and indistinctly punctured; antennæ pitchy, with base obscurely reddish, joints 2–3 of about equal length, fourth transverse, 5–10 strongly transverse; thorax nearly as broad as elytra, fully half as broad again as long, with sides gently rounded in front, very finely punctured, distinctly channelled; elytra longer than thorax, finely and closely punctured, nearly black, fuscous brown, or brown; hind body distinctly pubescent,

with segments 2-4 distinctly and rather closely punctured, fifth sparingly and finely punctured, sixth nearly impunctate; legs testaceous, sometimes slightly pitchy. L. 2 mm.

Male with dorsal plate of seventh segment of hind body with two stout rounded teeth or tubercles, separated at apex by a slight notch, and with a rather longer, slender, pointed spine on each side, curved inwards.

In decaying fungi, dead leaves, &c., especially in the autumn; local, but occasionally found in numbers; London district, generally; Littleington, Sussex; Tonbridge; Stourport, Birmingham district, fungi; not recorded from further north.

H. autumnalis, Er. (*foveola*, Muls. et Rey, *laticornis*, Mots., *Microdota autumnalis*, Muls. et Rey). Rather like the preceding, but distinguished from it by being more sparingly punctured and pubescent, by its brighter-coloured legs and base of antennæ, and by the shape of the thorax which has the sides straighter and less narrowed in front; the antennæ also are shorter; black, rather dull, with the elytra brownish; head broad, indistinctly punctured; antennæ pitchy with the three basal joints yellow, third joint more slender than second, but nearly as long, fourth small, nearly as long as broad, 5-10 plainly transverse; thorax transverse, nearly as broad in front as behind, finely and sparingly punctured, with an indistinct longitudinal central channel; elytra longer than thorax and more closely and distinctly punctured; hind body with segments 2-4 sparingly and moderately finely punctured, 5-6 nearly impunctate; legs yellow. L. 2 mm.

Male with the front of the head channelled, hind margin of dorsal plate of seventh segment of hind body furnished with four teeth, the lateral ones fine and pointed and separated from the middle ones by a deep excision on each side, the middle ones broad and rounded and near one another; segments 5-6 with oblong granulations; the whole upper surface is rather strongly alutaceous between the punctures in both sexes, and hence the dull appearance of the insect.

In marshy places; often under bark; also at the exuding frass of *Cossus*-infected trees; rare; Norwood, Coombe Wood, Cowley (Power, at sap); Hampstead; Tonbridge; Granvilles Wotton; New Forest; Bedford; Bewdley Forest; Salford Priors; Knowle, near Birmingham; also recorded from Manchester, but from no place further north.

This species curls up its hind body in running like a *Gyrophæna*.

GROUP 17.

This group is composed of small species, none of them except large specimens of *H. sericea* exceeding 2 mm. in length, and some of them being among the smallest representatives of the genus; *H. inquinula*, in fact, is the smallest species known; the species are found in moss, fungi, bottoms of haystacks, and in vegetable refuse generally; also in dung, and dead birds and animals, and occasionally at sap; some of

them are extremely closely allied ; in fact by some continental authorities *H. indiscreta*, Sharp, is now considered as synonymous with *H. subtilis*, Scriba, and *H. atricolor*, Sharp, with *H. mortuorum*, Thoms. ; the former pair differ in certain points of size and punctuation, but are certainly very hard to distinguish ; the latter, however, appear very distinct by reason of the relative difference of the length of the elytra and different sculpture ; as regards the former point, however, some specimens appear to differ somewhat from others.

H. sericea, Muls. (*amicula*, Steph., *Microdota sericea*, Muls. et Rey). Black with the elytra blackish or pitchy black, rather shining, somewhat robust, with short, stout, more or less pitchy antennæ ; head rather large with sides straight behind eyes and then narrowed ; antennæ with two first joints lighter, thickened from third joint to apex, second joint stout, third shorter than second, 4-10 gradually stouter, and more transverse, the latter being strongly transverse, eleventh stout as long as the two preceding ; thorax nearly as broad as elytra, half as broad again as long, about as wide in front as behind, sometimes with an obscure channel, sometimes with an indistinct impression before scutellum, sometimes without either, finely punctured ; elytra rather short, slightly longer than thorax, finely and closely punctured and pubescent ; hind body black, broader towards apex, segments 2-4 finely and rather sparingly punctured, 5-6 nearly impunctate ; legs dusky testaceous. L. $1\frac{1}{2}$ -2 mm.

Male with the apical margin of seventh segment of hind body rather broadly and very feebly emarginate, the emargination sometimes being extremely indistinctly crenulate, under plate of the same segment more produced than in female.

At bottoms of haystacks, in vegetable refuse, fungi, &c. ; also at sap of felled trees ; common throughout the country.

H. subtilis, Scriba (*Homalota (Alaobia) subtilis*, Muls. et Rey). Allied to the preceding ; it is, however, distinguished by its thicker punctuation and pubescence, longer elytra, and more slender antennæ, of which joints 2-6 are evidently thinner ; the hind body is punctured much as in *H. sericea*, but not quite so sparingly ; the male, apparently, has the apex of the seventh segment of hind body indistinctly truncate and not emarginate, but the sexual characters appear to be obscure and hardly known : Mulsant and Rey remark that its form is less linear than that of *H. sericea*, and that it is further distinguished by having the third joint of the antennæ not shorter than the second, but these characters, certainly the latter of them, seem to be of little value. L. $1\frac{1}{2}$ mm.

Rare ; usually found singly ; Scotland, Forth, Solway, Tay, and Dee districts ; Sherwood Forest (W. G. Blatch).

H. indiscreta, Sharp. Closely allied to the preceding, but a little more shining, with the thorax foveolate at base, and the hind body differently punctured ; in *H. sericea* and *H. subtilis* segments 2-4

are rather sparingly punctured, and 5-6 almost smooth, whereas in this species segments 2-4 are rather closely punctured, the fifth more sparingly, and the sixth is almost smooth; the punctuation appears very slightly coarser in Dr. Sharp's type specimen of the male, and the upper surface of seventh segment is granulate; there appears some doubt whether it is a distinct species. L. $1\frac{1}{2}$ mm.

Rare; Scotland, Solway, Dee, and Moray districts.

According to Dr. Sharp this species is distinguished from *H. sericea* by being darker in colour, more depressed, rather broader, but more narrowed to the front, the pubescence finer, denser, and more regular, and the elytra longer in proportion to the thorax; from *H. indubia* it is distinguished by its shorter antennæ which are more thickened towards the apex, of which joints 5-10 are distinctly transverse, and by the uncrenulate seventh segment of hind body in male.

H. indubia, Sharp. About the size of *H. sericea* but blacker, still more sparingly pubescent, and therefore more shining, with the antennæ not quite so stout; head rather broad, with disc flat, almost smooth; antennæ black, with joints 2-3 longer and more slender than in *H. sericea*, fifth slightly transverse, 9-10 strongly so, eleventh pointed, as long as the two preceding; thorax half as broad again as long, finely and sparingly punctured and pubescent, indistinctly impressed before scutellum; elytra longer than thorax and more distinctly punctured; hind body black and shining, segments 2-4 sparingly punctured, 5-6 almost impunctate. L. $1\frac{1}{2}$ mm.

Male with apical margin of seventh abdominal segment distinctly and plainly crenulate: this is the best distinguishing mark of the species.

In haystack rubbish, dead leaves, tidal refuse, &c.; rare; Sheerness, Weybridge, Birdbrook, Mickleham, Caterham, Sanderstead, Cowley, Birch Wood; Loughton; St. Leonards; Hastings; Tonbridge; Seaton, Devonshire; Smallheath and Knowle (bones); Yardley, near Birmingham (grass-tufts); Scotland, scarce, Forth and Solway districts.

H. mortuorum, Thoms. (*Atheta mortuorum*, Thoms.). Allied to *H. sericea*, but smaller and blacker, and with shorter antennæ than in that species, the basal joints being less elongate; head nearly as broad as thorax, with an impression or channel in middle; antennæ black, thickened towards apex, second joint almost twice as long as third, 4-10 distinctly transverse, eleventh about twice as long as tenth; thorax transverse, subquadrate, rather dull, thickly punctured, sometimes obsoletely channelled; elytra short, scarcely longer than thorax, black or dark fuscous, very closely punctured and pubescent; hind body rather shining, with segments 2-4 somewhat closely punctured, 5-6 smooth; legs pitchy. L. $1\frac{1}{3}$ mm.

Sexual differences obscure.

Rare; Dr. Power has specimens in his collection from Shirley, Esher, Birch Wood, Highgate, and Littleington, but I do not feel sure that they all belong to this species. Scotland, rare, Tay, Dee, and Solway districts.

H. atricolor, Sharp. Very closely allied to the preceding, but it is slightly smaller, and plainly narrower, and the punctuation, although fine, is distinctly rough; the antennæ appear to be a little shorter, and the elytra are plainly longer in proportion to the thorax; the hind body also is differently punctured, segments 2-4 being rather closely and finely, but roughly punctured, fifth more sparingly punctured, sixth nearly impunctate; legs black or pitchy black. L. $1\frac{1}{3}$ mm.

Male with the apex of dorsal plate of seventh segment truncate in middle.

In moss, haystack refuse, dung, dead animals, &c.; extremely abundant throughout Scotland; not so common in England and Wales, but widely distributed, and by no means uncommon in many localities; Mr. Blatch records it as abundant under elm bark in Sherwood Forest.

H. inquinula, Er. (*Microdota inquinula*, Muls. et Rey). A very small, linear species, in fact, the smallest species of the genus; punctuation and pubescence rather close and fine; colour black, with the elytra obscurely brownish or pitchy; head rather large and long with a distinct channel or impression in middle; antennæ short and rather stout, joints 1-3 stout, second joint stouter and much longer than third, 4-10 transverse, 5-10 strongly so, eleventh stout and pointed as long as the two preceding; thorax about a third broader than long, sometimes channelled; elytra longer and broader than thorax; hind body shining, segments 2-4 finely and rather closely punctured, fifth finely and sparingly punctured, sixth more sparingly punctured; legs dirty yellow or pitchy. L. $\frac{3}{4}$ -1 mm.

Male with the apical margin of dorsal plate of seventh segment obtusely truncate in middle.

In dung; local but not uncommon in sandy places in the London district, and south of England. London district generally, Darenth, Mickleham, Birch Wood, Cowley, Cowfold near Horsham, Tonbridge, Hampstead, Southend, &c. I can find no record from the Midlands or further north, but the species from its minute size is probably often overlooked, unless specially searched for.

SECTION VII.

Hind body more or less distinctly narrowed to apex; hinder angles of thorax rounded.

This section may be divided into five groups as follows: the species belonging to Groups 21 and 22 are included together by Dr. Sharp as species of moderate size, but *H. parva* and its allies are distinctly small species, and are often confounded by beginners with the *H. nigra* group, and appear naturally to succeed them, at all events more naturally than *H. marcida*, *intermedia*, and *longicornis*; of these and two other species I have formed Group 22, and placed it immediately before the *H. melanaria* group, to which *H. longicornis* appears to bear a distinct relation.

18. Very small species ($1\frac{1}{2}$ –2 mm.); hind body only a little narrowed towards apex, closely punctured; thorax but little narrowed in front (p. 123).
19. Small species (2 – $2\frac{3}{4}$ mm.); hind body slightly or moderately narrowed towards apex; thorax scarcely or moderately narrowed towards the front; hind body with apical segments sparingly punctured or impunctate (p. 126).
20. Moderately-sized species (3 – $3\frac{1}{2}$ mm.); hind body and thorax shaped as in the preceding; apical segments of hind-body impunctate or punctured * (p. 130).
21. Hind body strongly pointed and thickly punctured, thorax strongly narrowed towards the front (p. 133).
22. Hind body distinctly narrowed towards the apex, thorax distinctly narrowed in front, apical segments of the abdomen sparingly punctured or impunctate (p. 137).

GROUP 18.

The species of this group are all very small, none exceeding 2 mm. in length, and the majority being even smaller; they occur in vegetable refuse, dead leaves, decaying fungi, dung, &c.; the male characters are rather obscure, especially in some of the species. *H. nigra* is very common and abundant, but all the others are more or less rare; very probably, however, some of them at least are overlooked. In the last European catalogue (Heyden-Reitter-Weise) *H. germana*, Sharp, is given as synonymous with *H. celata*, Er., and *H. hodierna*, Sharp, is included under *H. zosteræ*, Thoms. = *H. nigra*, Kr.; there appears to be considerable confusion with regard to the synonymy of *H. nigra*, Kr., *H. celata*, Er., and *H. celata*, Thoms. nec Er., which has not yet been satisfactorily cleared up. *H. germana* is more closely allied to *H. nigra* as we generally consider the species than to *H. celata*, Er., as described by Sharp; Thomson, however, considers that Erichson's description of *H. celata* probably refers to *H. nigra*, Kraatz, and Dr. Sharp thinks he is very likely right; the confusion appears to be so great that it seems better to retain the six species, especially as Dr. Sharp retains them all as separate in the last edition of his British catalogue.

***H. nigra*, Kr.** (*Microdota* (*Datomicroa*) *nigra*, Muls. et Rey, *Atheta celata*, Thoms., *zosteræ*, Thoms. = *vicina*, Kr.). Narrow and linear, rather shining, entirely black (the elytra sometimes lighter in immature specimens), clothed with thick pubescence which gives it a grey appearance, closely and finely punctured; head narrower than thorax, sometimes indistinctly impressed or channelled; antennæ black or pitchy, a little thickened towards apex, first joint stout, second longer than third, fourth about as long as broad, 5–10 each a little broader than the preceding, but none strongly transverse, eleventh as long as the two preceding together; thorax about a third broader than long, nearly as broad as elytra, with an impression in middle of base, and sometimes more or less

* *H. longicornis* has the apical segments finely and evenly punctured; in the other species they are sparingly punctured or impunctate.

H. atramentaria has an average size of nearly 3 mm., but varies from $2\frac{1}{4}$ – $3\frac{1}{4}$ mm.; in some ways its more natural position is in the preceding group.

obscurely channelled; elytra longer than thorax, closely and finely punctured; hind body a little narrowed towards apex, closely, finely, and evenly punctured, segments 5-6 more sparingly than the others. L. $1\frac{3}{4}$ -2 mm.

Male with the upper plate of seventh segment of hind body truncate and furnished with four indistinct projections or teeth, two at the sides, and two intermediate; female with the hind margin of the same part indistinctly emarginate in middle.

In haystack refuse, decaying fungi, and vegetable refuse generally; very abundant throughout the kingdom.

H. hodierna, Sharp (sub-gen. *Microdota*, Muls. et Rey). This species is certainly very closely allied to *H. nigra*, but is larger and more robustly formed, and the antennæ are longer and less thickened towards apex, and have the last joint much longer than in *H. nigra*; head broader and shorter than in this species, in the male distinctly channelled; the general punctuation, also, is rather finer, especially of the hind body; male characters as in *H. nigra*. L. 2 mm.

Very rare; Horning Fen, Norfolk; it has also occurred in Scotland.

If closely compared with *H. nigra* under a high magnifying power, this certainly appears to be a good and distinct species.

H. germana, Sharp (sub-gen. *Microdota*, Muls. et Rey). About the size of *H. nigra*, but distinctly broader in proportion, with a shorter and more transverse thorax and more distinct and rougher punctuation; the antennæ are rather shorter, as also is the head; the elytra also are slightly shorter; the hind body is black, a little shining, closely and finely but distinctly punctured, the punctuation not closer but more distinct than in *H. nigra*; legs pitchy. L. $1\frac{1}{2}$ mm.

Male characters much as in *H. nigra*, except that the teeth are still more obsolete and sometimes hardly visible.

In haystack refuse, dead leaves, &c.; not common in the London district; Lee, Esher, Woking, Mickleham; Gomshall, Highgate, Chatham; Riddlesdown; Yardley and Knowle, near Birmingham; Sherwood Forest; commoner further north; Northumberland district, nearly as common as *H. nigra*, Bold. Scotland, common, Tay, Forth, and Solway districts.

Dr. Sharp compares this species, as above, with *H. nigra*; it appears, however, to be more closely connected with *H. celata*, from which it is distinguished by its darker colour, distinctly longer elytra, longer head, and distinctly coarser sculpture; the thorax also is plainly more narrowed in front, whereas in *H. celata* it is almost as broad in front as behind; the colour of the antennæ and legs, also, is darker; it certainly appears to be a distinct species.

H. celata, Er. (*Microdota* (*Datomicra*) *celata*, Muls. et Rey, *indigena*, Heer, *Atheta dadopora*, Thoms., *arenicola*, Thoms.). Black, rather dull, with the elytra fuscous, and the apex of hind body sometimes

lighter; it strongly resembles *H. nigra*, from which it differs by its slightly smaller size, more transverse thorax, less narrowed hind body, and especially by having segments 5-6 more sparingly punctured than in that species; from *H. sericea* and its allies it may be distinguished by its more densely punctured hind body; it is also closely related to *H. sordidula*, but that species is smaller, narrower, more flat and depressed, with longer terminal joint of antennæ, and has the apical segments of hind body more thickly punctured; the head is broad, sometimes with an obscure impression on disc; antennæ rather stout, blackish, obscurely paler at base, second joint longer than third, fourth nearly as long as broad, fifth broader than fourth, 6-10 slightly transverse, eleventh quite as long as the two preceding together; thorax about half as broad again as long, nearly as broad in front as behind, more or less distinctly channelled; elytra longer than thorax, usually brownish or fuscous brown; hind body moderately shining, segments 2-4 closely and distinctly punctured, 5-6 more sparingly punctured; legs yellowish or yellow. L. $1\frac{1}{2}$ mm.

Male with hind margin of upper plate of seventh segment of hind body furnished with four small teeth, one at each angle and two in middle, the outer ones more distinct, the inner ones separated by a rather broad and very shallow emargination.

In decaying fungi, and at sap of felled trees, also among dead leaves, &c.; it also occurs in small carcasses. The larva, according to Perris, lives in the galleries of *Hylurgus piniperda*, and attacks their young larvæ, and also those of the small *Poduridæ* which swarm in such localities; the species is rare in Britain: Weybridge, Esher, Darenth Wood, Hampstead, Gomshall, Ashted Common; it has not been found, apparently, except in the London district.

H. sordidula, Er. (*Atheta sordidula*, Thoms., *Microdota (Datomica) sordidula*, Muls. et Rey). A small narrow species with hind body rather distinctly pointed, and with the last joint of the antennæ elongate, longer than the two preceding, characters which, besides its smaller size, distinguish it from *H. nigra*; the head is small with the sides a little straight behind eyes, generally indistinctly impressed in front; the thorax is about one-third broader than long, finely and closely punctured, with a fine, but distinct longitudinal channel in front of scutellum; the elytra are about as long proportionately to thorax as in *H. celata*, and so shorter than in any of the other three, closely and finely punctured; hind body distinctly narrowed to apex, upper surface closely finely and evenly punctured, and thickly pubescent; legs pitchy yellow. L. $1\frac{1}{3}$ mm.

Sexual differences obscure.

In dung, dung-heaps, hotbeds, dead leaves, &c.; common over almost the whole of France, but either very local or overlooked in Britain; London district, not uncommon, Darenth Wood, Hampstead, Lee, Chatham, Sheerness, Esher, Reigate, Caterham, Walton-on-Thames, Wimbledon, Eltham, Dagenham, Loughton; Tonbridge; New Forest; Weymouth; Exeter; Yardley and Knowle, near Birmingham; Manchester; Northumberland district; Sweetthope (Power); Scotland, Solway district only.

H. canescens, Sharp (sub-gen. *Microdota*, Muls. et Rey). This species is rather closely allied to *H. sordidula*, but is broader and more parallel, with the antennæ shorter, the terminal joint especially, the latter point affording a good distinguishing character; the punctuation throughout is not quite so close and fine, but owing to its rather thicker pubescence the upper surface is slightly duller; the head is rather broad; the antennæ have joints 5–10 more distinctly transverse than in *H. sordidula*; the thorax is slightly more transverse, and the elytra a little longer in proportion; hind body scarcely narrowed towards apex, finely, evenly, and closely punctured; legs pitchy yellow. L. $1\frac{1}{3}$ mm.

Male with the hind margin of dorsal plate of seventh segment much as in *H. celata*, but with the four teeth smaller and more indistinct.

In dung, dead leaves, &c.; local and not common, or perhaps overlooked; London district, not uncommon, Highgate, Ashted, Walton-on-Thames, Croydon, Mickleham, Esher, Caterham, Weybridge, Lee, Eltham, Loughton, &c.; Tonbridge; Hainault Forest; New Forest; Winchester; Knowle, near Birmingham; Sherwood Forest; Scotland, Solway district only; it will probably be found in many other localities, as most persons who work the *Homalotæ* appear to find it in their neighbourhood.

This little group is perhaps the most difficult of all the *Homalotæ*, not even excepting the *H. sericea* group, which in some ways rather resembles it.

GROUP 19.

This group contains seven species, one or two of which are very distinct from the rest, and might well be separated from them; they occur chiefly in dung, but are occasionally found in moss and vegetable matter; the sexual characters are usually more or less obscure.

H. cauta, Er. (*pulicaria*, Er., *parvula*, Mann., *Atheta cauta*, Thoms., *H. parva* of our catalogues (? *parva*, Sahlb.), *Badura parva*, Muls. et Rey). A small, black, shining species with rather rough punctuation and pubescence; head a little narrower than thorax; antennæ moderately long and not stout, joints 2–3 moderately long, slender, third hardly as long as second, fourth about as long as broad, 5–10 slightly transverse, eleventh joint gently pointed, quite as long or rather longer than the two preceding together; thorax a little narrower than elytra, narrowed in front, rather strongly and roughly punctured, with distinct outstanding hairs at sides, indistinctly channelled in front of scutellum; elytra a little longer than thorax, black or pitchy, a little more closely punctured than thorax; hind body black, plainly narrowed towards apex, segments 2–4 distinctly and rather closely, fifth more sparingly, sixth very sparingly punctured; outstanding setæ of sides and apex very distinct; legs pitchy, the four posterior tibiæ each with two fine exserted setæ, of which the lower one is considerably the longer. L. 2 mm.

Male without any particular structure of seventh segment of hind

body, female with the hind margin of ventral plate ciliate, and excised in middle.

In dung, dead leaves, moss, &c., common throughout the kingdom.

From *H. nigra* it may at once be distinguished by its more strongly narrowed hind body which is more shining especially towards apex, the rough punctuation of front parts, and the strong exerted setæ of the segments of the hind body, thorax, and posterior pairs of tibiæ.

I have adopted the name *H. cauta*, Er., as *H. parva* appears to be considered by continental authorities as the proper name to be applied to *H. pilosiventris*, Thoms. = *stercoraria*, Kraatz.

H. villosula, Kr. (*Atheta villosula*, Thoms., sub-gen. *Dimetrota*, Muls. et Rey, *nigripes*, Thoms.). Deep black, rather dull except the hind body which is shining, somewhat strongly punctured; head much narrower than thorax; antennæ black, somewhat stout, thickened towards apex, joints 2-3 rather stout, of about equal length, 4-10 each a little broader than the preceding, the first as long as broad, the latter ones slightly transverse, eleventh stout, gently pointed, as long as the two preceding together; thorax a little narrower than elytra, half as broad again as long, narrowed in front, indistinctly impressed in front of scutellum, with a few outstanding setæ at sides; elytra longer than thorax, distinctly sculptured; hind body shining, only narrowed behind, segments 2-4 moderately punctured, 5-6 finely and sparingly punctured, sides and apex with distinct setæ; legs pitchy, tarsi lighter, the posterior ones hairy; intermediate and posterior tibiæ each with two long setæ, the lower ones being the longer. L. $2\frac{2}{3}$ mm.

Male with the hind margin of dorsal plate of seventh segment truncate in middle, and armed on each side with a fine spine; in the female the same part is obsoletely emarginate with a small sharp tooth on each side.

In dung, dead leaves, &c.; rather widely distributed, but local; London district, rare, Lee, Cowley, Hampstead, Darenth Wood, Chatham, Loughton; Littleington, Sussex; Upnor, near Rochester; Markfield, near Leicester; Birmingham district; Repton; Tonbridge; Liverpool; Manchester; Northumberland district; Scotland, scarce, Tay, Dee, and Solway districts; Ireland (near Waterford) (Power).

H. setigera, Sharp (sub-gen. *Dimetrota*, Muls. et Rey). Black, rather shining, with the elytra pitchy black, closely and rather strongly punctured; antennæ slightly thickened towards apex with joints 7-10 distinctly transverse; thorax one-third broader than long, plainly narrower than elytra, narrowed both in front and behind but not strongly in either case; elytra about a third longer than thorax, rather closely and strongly punctured; hind body black and shining, segments 2-4 distinctly but not closely punctured, fifth more sparingly punctured, sixth impunctate or nearly so, sides and apex with distinct outstanding setæ; legs pitchy, four posterior tibiæ each with two fine, rather short setæ. L. 2 mm.

Male with the hind margin of ventral plate of seventh segment gently rounded, female with the same part excised and ciliate.

In dung; local, but somewhat widely distributed; Hampstead; Tonbridge; New Forest; Smallheath and Knowle, near Birmingham; Manchester; Northumberland district, very rare, Wallington (Power), and Whitley Sands; Scotland, scarce, Solway, Forth, Tay, Dee, and Moray districts.

Dr. Sharp in his description compares this species with *H. parva* and *H. atramentaria*; from the former its more thickened antennæ, broader head, less transverse thorax (which is also less narrowed in front), rather more sparing punctuation, and the shorter lower setæ of its tibiæ, distinguish it; it is much smaller than *H. atramentaria*, with the anterior parts blacker and more shining, and the antennæ shorter and more thickened towards apex. In the last European catalogue it is given as a variety of *H. lævana*, Muls. et Rey, with which species Dr. Sharp does not even compare it; it is smaller than that species and much blacker (the elytra in *H. lævana* being brown, and the apex of hind body testaceous or pitchy); the antennæ, too, appear quite different, the penultimate joints being scarcely transverse in *H. lævana*, and plainly transverse in *H. setigera*; they are also, taken as a whole, shorter; the male characters, moreover, are quite different, the dorsal plate of seventh segment of hind body being emarginate and toothed in *H. lævana*, and without any peculiar structure in *H. setigera*.

H. lævana (sub-gen. *Dimetrota*, Muls. et Rey). Black, rather shining, with the elytra brownish, and the apex of hind body more or less obscurely pitchy or testaceous; from *H. setigera* it differs as above; it resembles both *H. cinnamoptera* and *H. atramentaria*; from the former it is distinguished by having the antennæ stouter towards apex, the head, thorax, and elytra more shining and less densely punctured, and the hind body less narrowed towards the apex and more sparingly punctured; from the latter it is easily separated by the stouter antennæ, unicolorous brown elytra, pale legs, and narrower thorax; the head is rather broad; the antennæ are moderately long and stout with the penultimate joints only slightly transverse, and the eleventh joint long, longer than the two preceding together; thorax a third broader than long, rather closely and finely punctured with a few outstanding setæ, sometimes with a short channel in front of scutellum, sometimes smooth; elytra one-third longer than thorax, rather closely and finely and somewhat rugosely punctured; hind body with segments 2-4 distinctly and not very closely punctured, fifth more sparingly punctured, sixth almost impunctate; legs yellow, intermediate and posterior tibiæ with two fine setæ, the one nearest the knee the shortest. L. $2\frac{1}{2}$ - $2\frac{2}{3}$ mm.

Male with the hind margin of dorsal plate of seventh segment emarginate in middle with two teeth, placed close together, on each side.

In dung, &c.; rare; Highgate, Lee, Bexley, Esher, Mickleham, Caterham, Leith Hill, Croydon, Shirley, Weybridge; Tonbridge; Brighton; Smallheath and Knowle,

near Birmingham (under bones); Northumberland district, Wallington (Power); Scotland, local, Solway, Tay, and Moray districts.

H. cinnamoptera, Thoms. (*Atheta cinnamoptera*, Thoms., *Homalota* (*Dimetrota*) *putrida*, Kraatz (Muls. et Rey?)). Black with the front parts dull, elytra brown; head and thorax sometimes with a very slight brassy reflection; head somewhat large and coarsely punctured; antennæ rather long, longer than head and thorax, pitchy, with lighter base, joints 2-3 rather long, 4-9 as long as or longer than broad, tenth transverse, eleventh as long as the two preceding together; thorax transverse, distinctly, closely and somewhat roughly punctured, with a few plain exserted setæ, channelled in middle, the channel extending the whole length of thorax or abbreviated; elytra longer than thorax, distinctly and somewhat rugosely punctured; hind body black and shining, segments 2-4 finely and rather closely punctured, fifth more sparingly, sixth very finely and sparingly, punctured, sides and apex with distinct exserted setæ; legs yellow, middle and posterior tibiæ with two setæ, one near the knee, another nearer tarsus, the latter longer. L. $2\frac{1}{2}$ mm.

Male with the hind margin of dorsal plate of seventh segment of hind body with external angles less rounded than in female.

In dung, carcasses, decaying fungi, &c.; local; Hampstead, Sheerness, Ashtead, Esher, Leith Hill, Shirley, Richmond Park; Tonbridge; Birmingham district; Needwood Forest; Dean Forest; Northumberland district, Wallington (Power); Scotland, common, Solway, Forth, Dee, Tay, and Moray districts.

H. fuscipes, Heer (*fimorum*, Bris., *Colpodota* (*Solenia*) *fimorum*, Muls. et Rey, sub-gen. *Acrotona*, Thoms.). This species comes very near the preceding, but is smaller, darker, rather more sparingly punctured, and with shorter antennæ; head rather strongly punctured; antennæ slightly thickened towards extremity, pitchy, with the base sometimes obscurely lighter, third joint almost as long as second, fourth small, 6-10 slightly, but not strongly, transverse; thorax as broad at base as elytra, broader than long, rather distinctly punctured, with a fovea before scutellum, and a more or less distinct central channel; elytra a little longer than thorax, somewhat rugosely punctured, obscurely brown or reddish; hind body shining, finely and rather thickly punctured towards base, sparingly punctured or almost smooth at apex; legs testaceous, intermediate and posterior tibiæ with two exserted setæ, one near middle, and one a little above it. L. $2\frac{1}{4}$ mm.

Very rare; taken by Mr. Crotch, probably in Norfolk; in France it is rather common in dry fungi and dung-heaps in the middle of fields, near Lyons, and also near Paris.

According to Mulsant and Rey it differs from *H. subsinuata* by the obscurely testaceous colour of its elytra, and by having the posterior angles of thorax a little less pronounced, and from *H. clientula* by its thorax being always furrowed, and by the dark base of the antennæ;

the small fourth joint of the antennæ is also a distinguishing character.

H. macrocera, Thoms. (*Atheta macrocera*, Thoms., *Dimetrota nudicornis*, Rey). Rather narrow, with the hind body strongly pointed; black, with the elytra fuscous or brownish, and the apex of hind body lighter; head only a little narrower than thorax, closely but distinctly punctured; antennæ pitchy with lighter base, long and scarcely thickened towards apex, joints 1-3 elongate, fourth smaller than fifth, 5-9 longer than broad, tenth about as long as broad, eleventh elongate, oblong, as long as the two preceding together; thorax slightly narrower than elytra, broader than long, rather closely and finely punctured, with a fine channel, varying in length and distinctness, before scutellum; elytra very little longer than thorax, closely and finely punctured, hind body with segments 2-4 rather closely and finely punctured, fifth more sparingly, but distinctly, sixth very sparingly punctured, sides, apex, and hind margin of segments with distinct setæ; legs testaceous, with a distinct outstanding seta in middle of each of the intermediate and posterior tibiæ. L. 2 mm.

Sexual differences apparently obscure.

In dung, cut grass, under bones, &c.; rare in England; Mickleham (Power); Snowdon (Sharp); Smallheath and Knowle, near Birmingham (Blatch); Northumberland district, Long Benton (Bold); Scotland, local, in dung, Solway district, Thornhill, in numbers (Sharp), also in the Tay and Moray districts.

GROUP 20.

This group contains five species, which are included by Dr. Sharp in the same group as the preceding; *H. atramentaria* might perhaps be with better reason placed near *H. villosula*, but it appears to be intermediate in some respects between this and the preceding group; *H. consanguinea*, which has recently been found at Hastings by Mr. E. Saunders, is very closely allied to *H. sordida* and *H. testudinea*, and forms a connecting link between this and the succeeding group.

H. atramentaria, Gyll. (*impressicollis*, Sahlb., *ænescens*, Zett., *Atheta atramentaria*, Thoms., sub-gen. *Dimetrota*, Muls. et Rey). Front parts rather dull, obscurely brassy, a character which at once distinguishes the species, hind body shining black, elytra sometimes reddish, head sparingly and indistinctly punctured; antennæ blackish with pitchy base, joints 2-3 about equal in length, 4-6 longer than, or as long as, broad, 7-10 slightly broader than long, eleventh as long as the two preceding together; thorax broader than long, sides nearly straight, rather closely and finely punctured, with an indistinct transverse impression before scutellum; elytra longer than thorax, rather closely and somewhat rugosely punctured; hind body with segments 2-4 finely and sparingly punctured, fifth more sparingly punctured, sixth almost impunctate, the segments furnished at sides with very distinct outstanding

setæ; legs pitchy, femora usually darker, middle and posterior tibiæ with two distinct exserted setæ. L. $2\frac{3}{4}$ –3 mm.

Male with the hind margin of seventh segment of hind body shallowly emarginate, with a blunt, short, indistinct tooth at each side of emargination.

In dung; abundant throughout the kingdom, more especially in Scotland, where it is found everywhere from the coast to the tops of the mountains.

H. cadaverina, Bris. (sub-gen. *Dimetrota*, Muls. et Rey = *tristicula*, Muls. et Rey (?)). A fine and rather robust species, with broad head and thorax; head narrower than thorax, rather sparingly punctured; antennæ black, moderately long, rather slender, joints 2–3 elongate, 4–7 a little longer than broad, 8–10 slightly transverse, eleventh pointed as long as the two preceding together; thorax broad, nearly twice as broad as long, with sides slightly rounded, finely but plainly punctured, sometimes indistinctly channelled; elytra longer than thorax, much more strongly sculptured than thorax; hind body shining, sparingly punctured towards base, impunctate behind; legs reddish testaceous, femora pitchy, tibiæ without the long exserted setæ so characteristic of the allied species. L. $1\frac{1}{2}$ mm.

Male with the ventral plate of seventh segment of hind body narrower and more produced than in female.

In dead animals, moss, fungi, &c.; rare; Shirley, Dorking, Weybridge, Esher, Richmond Park, Loughton, Bloxworth, Bishops Wood; Manchester (haystacks); Scotland, local, Solway and Dee districts (Thornhill, heaps of cut grass, &c.).

H. marcida, Er. (sub-gen. *Dimetrota*, Muls. et Rey). Black rather shining, with the elytra brownish and the thorax sometimes pitchy; the apex of hind body is often paler; head rather narrowed behind eyes, which are a little prominent, sparingly and indistinctly punctured; antennæ long and scarcely thickened towards apex, fuscous with three or four basal joints yellow, the joints furnished with long outstanding hairs, joints 2–3 rather long, 4–5 rather stouter than third each longer than broad, 6–10 square or slightly transverse; thorax plainly narrower than elytra, not much broader than long, finely but distinctly and roughly punctured, with an indistinct transverse impression in front of scutellum; elytra long, longer than broad, much longer than thorax, closely and rather roughly punctured; hind body shining, very sparingly punctured towards base, smooth or almost smooth behind, sides and apex with distinct outstanding setæ; legs clear yellow, intermediate tibiæ with two distinct setæ, one near knee and another about middle, the latter the longest. L. 3 – $3\frac{1}{3}$ mm.

Male with the dorsal plate of seventh segment of hind body narrow and indistinctly rounded at apex which is slightly thickened, female with apex of ventral plate rounded and ciliated.

In decaying fungi, dead leaves, &c.; local, but often found in abundance in autumn; London district, generally distributed, Birch Wood, Bexley, Lee, Esher, Highgate, Mickleham, Richmond, &c.; Tonbridge; Sutton Park, Birmingham; Repton, near

Burton-on-Trent; Sherwood Forest; Pendlebury, near Manchester; Northumberland district, Wallington; Scotland, scarce, Solway district: it appears to be a Southern and Midland species, and rarer further north.

In some respects this species resembles *H. occulta* and its allies.

H. intermedia, Thoms. (*Atheta intermedia*, Thoms., sub-gen. *Dimetrota*, Muls. et Rey). Distinguished from the preceding by its shorter and less parallel elytra, more pointed hind body, the head not narrowed behind the eyes, the punctuation of hind body, and other points; black with the elytra yellow, a little darker about scutellum and at sides, thorax sometimes pitchy, apex of hind body more or less obscurely testaceous; head rather broad, finely and indistinctly punctured; antennæ long and rather stout, but scarcely thickened towards apex, joints 2-3 elongate, fourth about as long as fifth, 5-10 each about as long as broad, eleventh about as long as the two preceding together, thorax nearly as broad as elytra, with sides nearly straight, finely and rather closely punctured, with a small narrow impression at base before scutellum; elytra not much longer than thorax, closely and finely punctured; hind body shining distinctly narrowed to apex, segments 2-5 finely, evenly, and rather closely punctured, sixth nearly impunctate, sides with a few outstanding setæ, apex with a larger number; legs bright yellow, intermediate tibiæ with one seta in middle, posterior tibiæ without setæ. L. 3-3½ mm.

Male with the ventral plate of seventh segment of hind body narrower and longer than in female.

In decaying fungi, dead leaves, moss, &c.; not common; Bexley, Mickleham, Reigate, Shirley, Leith Hill, Caterham, Esher, Dorking, Highgate, Purley Downs, Epping, Tonbridge; Winchester; Knowle, near Birmingham; Wicken and Burwell Fens; Northumberland district, in fungi; Wallington (Power); Scotland, scarce, Solway, Tay, Dee, and Moray districts.

H. longicornis, Grav. (*Atheta longicornis*, Thoms., *Chaetida longicornis*, Muls. et Rey). One of the commonest and most distinct of the British species; the long thick antennæ, much pointed and thickly punctured hind body, with its strong pubescence and exserted setæ, and the very long exserted setæ of thorax and tibiæ, will at once distinguish it; black with the elytra brownish or brownish yellow, apex of hind body more or less pitchy; head rather small, sparingly and finely punctured; antennæ long and stout, although not much thickened towards apex, nearly black, with first joint pitchy, third joint longer than second, fourth much smaller than any of the others, 5-10 each distinctly longer than the preceding, 5-6 transverse, 7-10 longer than broad, eleventh long, half as long again as tenth; thorax nearly as broad as elytra, half as broad again as long, sides slightly rounded in front, rather finely and not closely punctured; elytra a little longer than thorax, closely and rather strongly punctured; hind body strongly narrowed towards apex, densely and evenly punctured, sides and apex with distinct outstanding hairs; legs dark yellow, femora infusate, middle and posterior tibiæ each with two long exserted setæ. L. 3 mm.

Male with the apex of dorsal plate of seventh segment of hind body indistinctly emarginate, ventral plate rounded, female with the ventral plate emarginate and ciliated.

In dung, haystack refuse, vegetable refuse, &c.; extremely abundant throughout the kingdom.

H. consanguinea, Epplesheim (*Coprothassa consanguinea*, H. R. W.). Pitchy black or brownish with the thorax slightly lighter, the elytra reddish or reddish brown, and the apex of hind body broadly testaceous; head rather large, finely but not very closely punctured; antennæ long and robust, pitchy black with base sometimes ferruginous, joints 2-3 of about equal length, much longer than fourth, 5-10 not differing much in length, the penultimate being about as long as broad, last joint long, pointed, at least as long as the two preceding together; thorax transverse with sides rather evenly and not strongly rounded, and not strongly narrowed in front, the apex being nearly as broad as the base, punctuation fine; elytra about as long as thorax, finely sculptured; hind body not strongly narrowed behind, very finely punctured, less evidently at apex than at base; legs clear testaceous yellow. L. $2\frac{1}{2}$ -3 mm.

The male appears to have the under plate of the seventh segment of hind body produced beyond the upper plate and rounded.

Several specimens of this rare species were taken by Mr. E. Saunders in a sandy place at Hollington near Hastings in 1871; there is no doubt as to their being indigenous, but M. Fauvel, who kindly determined the species for me, expressed his surprise at their occurrence in Britain, as the species is mainly an Austrian one, and does not occur at all in France.

In general appearance *H. consanguinea* strongly resembles *H. sordida* and *H. testudinea*, but is easily distinguished by the shape of the thorax and the sculpture of the hind body, which is, moreover, not so much narrowed behind: judging from the specimens before me, it must when alive be a bright and conspicuous-looking insect.

GROUP 21.

The species belonging to this group are characterized by having the hind body strongly pointed at apex and thickly punctured throughout, and also by having the thorax strongly narrowed towards the front; they form a natural group, although they vary considerably in size and colour; one or two of them are, at first sight, extremely like *H. cauta* and its allies; they occur in dung, vegetable refuse, moss, leaves, &c.

H. sordida, Marsh (*lividipennis*, Er., Heer, &c., *fulcipennis*, Kol., *Coprothassa melanaria*, Thoms., *Colpodota (Hemitropia) melanaria*, Muls. et Rey). This distinct and common species has been generally supposed to be the *Ocypoda melanaria* of Mannerheim, but, as in the catalogue of Heyden Reitter and Weise the name *melanaria* is applied to the following

species, it appears the best course, in order to avoid confusion, to drop the name of *melanaria* altogether, until, at all events, the question is more fully settled.

The species may be found in abundance in almost any hotbed, dung-heap, or heap of fermenting vegetable rubbish, and may at once be distinguished by its dull black, almost pitchy, colour and clear yellow elytra, which have a dark triangular black patch about scutellum; the pubescence is very fine and thick, as also is the punctuation, the hind body as well as the front parts being finely and evenly punctured throughout; the head is broad and short; the antennæ are rather long and stout, of a pitchy, or yellowish-pitchy, colour, lighter at base, joints 2-3 rather long, fourth slightly transverse, 5-10 nearly equal not or very little transverse, eleventh long, pointed, longer than the two preceding together; thorax at base as broad as elytra, convex, very transverse, strongly narrowed towards the front; elytra strongly transverse, not markedly longer than thorax, coloured as above, the triangular dark patch sometimes reaching to apex; hind body thickly pubescent, sides furnished with long outstanding black setæ; legs clear yellow, the intermediate tibiæ only with a long seta in middle. L. $3\frac{1}{3}$ - $3\frac{1}{2}$ mm.

Male with the hind margin of dorsal plate of seventh segment of hind body indistinctly emarginate, ventral plate a little produced in middle, female with the ventral plate rather deeply emarginate in middle, the emargination furnished with pale cilia.

In haystack refuse, dung, hotbeds, &c.; extremely abundant throughout the kingdom.

H. testudinea, Er. (*tæniata*, Kol., *tenera*, Sahlb., *Coprothassa testudinea*, Thoms., *Colpodota testudinea*, Muls. et Rey (*melanaria*, Mann., teste H. R. W.)). Black, with the elytra dark testaceous or brownish with a dark triangular patch about scutellum, and with the sides also darker; the apex of hind body is obscurely pitchy; from *H. sordida* it is distinguished by its smaller size, darker colour, stronger punctuation, and less developed antennæ; it is also allied to *H. aterrima*, but cannot well be confounded with that species, by reason of its considerably larger size, stouter antennæ, coarser punctuation, and quite differently coloured elytra; head broad and short; antennæ black, pilose, with basal joint pitchy, third joint a little longer than second, 4-6 about as long as broad, 7-10 very slightly transverse, eleventh as long as the two preceding together; thorax as broad as, or broader than elytra, convex, much narrowed in front, with exserted setæ; elytra scarcely longer than thorax, rather strongly and closely, and somewhat rugosely, punctured; hind body strongly narrowed to apex, closely and distinctly punctured, the sixth rather more sparingly, with numerous outstanding setæ which are more numerous at apex; legs pitchy testaceous, middle and posterior tibiæ each with a long seta in middle. L. $2\frac{2}{3}$ -3 mm.

Male with the ventral plate of seventh segment of hind body narrow

at apex and rounded; female with the same part broader, slightly emarginate, and furnished with black cilia.

In dung, haystack refuse, dead leaves, &c.; very local; not uncommon in the London district and the south; it also occurs in the Midlands, but I can find no record from any place further north than Birmingham. Highgate, Hampstead, Lee, Deal, Darent Wood, Sheerness, Reigate, Wimbledon, Mickleham, Shirley, Caterham, Esher, Barnes, Surbiton, Birch Wood, Dagenham; Tonbridge; Deal; Glanvilles Wotton; New Forest; Knowle, near Birmingham.

H. aterrima, Grav. (*fuscata*, Mann., *Acrotona aterrima*, Thoms., *Colpodota aterrima*, Muls. et Rey). Black, rather dull, with the elytra black or brownish black, rather broad, with strongly pointed hind body, rather long and slender antennæ, and dense and fine punctuation; head rounded, antennæ a little longer than head and thorax, black, joints 2-3 nearly equal in length, fourth plainly longer than broad, 5-10 differing very slightly, hardly transverse, eleventh pointed, as long as the two preceding together; thorax at base nearly as broad as elytra, nearly twice as broad as long, narrowed in front, with central channel present or absent; elytra blackish, rarely with a reddish tint, sometimes pitchy, hardly longer than thorax, strongly transverse, closely and finely punctured; hind body thickly, finely, and evenly punctured, sixth segment rather more sparingly, with outstanding setæ; legs testaceous more or less infusate, femora pitchy, middle and posterior tibiæ with a distinct outstanding seta: this latter is a good character by which to separate this species from the two succeeding, in which the setæ on posterior tibiæ are indistinct or absent. L. $2\frac{1}{2}$ mm.

Sexual differences obscure; the ventral plate of seventh segment of hind body appears to be a little more prolonged in the male than the female.

In dung, haystack refuse, dead leaves, &c.; common; London district, common; Tonbridge; Exmouth; Chat Moss; Birmingham district; Repton; Liverpool; Northumberland district, common; Scotland, abundant throughout the country; Ireland, near Waterford, and probably common.

H. pygmæa, Grav. (*sericata*, Mann., *Acrotona obfuscata*, Thoms., *Colpodota pygmæa*, Muls. et Rey., *H. aterrima* var. 1, Er.). This species very strongly resembles the preceding, but it is generally of a lighter colour, and its pubescence is a little more distinct and longer; the antennæ are lighter, and have the sixth to the tenth joints a little shorter; the thorax is a little less strongly transverse, and a little less finely punctured, and is very slightly narrower in proportion to the elytra; the hind body is more strongly narrowed behind, and has the apex lighter; the legs are clearer testaceous, and the exserted seta of the posterior tibiæ is absent or exceedingly small; the basal joint of the posterior tarsi is as long as the two succeeding, whereas in *H. aterrima* it is but little longer than the second. L. 2 mm.

Sexual differences obscure; male with the ventral plate of seventh segment of hind body a little more prolonged than in female.

In moss, dead leaves, &c., especially in marshy places; not uncommon in the south; rarer further north; London district, generally distributed; Tonbridge; The Holt, Farnham; Cannock Chase; Bewdley; Knowle; Repton; Liverpool; Manchester district; Northumberland district, not common; Scotland, scarce, Tay and Solway districts: the Scotch form is darker than the southern form, and is very probably the *H. obfuscata*, Heer = *aterrima* var. 2, Erichson.

The elongate first joint of the posterior tarsi, which is at least as long as, if not longer than, the two succeeding, appears to remove this species from the true *Homalotæ* to the *Oxypodæ*; it is, however, generally regarded as a true *Homalota*, but must be looked upon as a somewhat abnormal member of the genus.

H. muscorum, Bris. (= *Colpodota stercoraria (pilosiventris)*, teste Muls. et Rey). This species is distinguished from *H. pygmæa*, which it much resembles, by its less elongate form, shorter antennæ, and the shorter basal joint of the posterior tarsi; from *H. aterrima* it is distinguished, among other points, by the shorter antennæ, of which the penultimate joints are plainly more transverse, by the small and indistinct setæ of the posterior tibiæ, and also by its less transverse thorax; *H. pilosiventris* also closely resembles it, but is smaller on an average, with a shorter thorax which is finely channelled at base; in *H. muscorum* there is no trace of a channel or impression; the antennæ also are shorter in the former than in the latter species, and the head is smaller; *H. pilosiventris* also is furnished with a distinct exserted seta on the outer side of the intermediate and posterior tibiæ, which is situated just below the knee. L. 2 mm.

The colour of *H. muscorum* is black with the elytra blackish or obscurely fuscous, and is usually darker than in *H. pygmæa*.

Sexual differences obscure, much as in the preceding species.

In moss, dead leaves, fungi, &c.; common as a rule throughout the country, but perhaps not so abundant or overlooked in the Midland districts; Scotland, abundant; Ireland, near Waterford, and probably common.

H. pilosiventris, Thoms. (*parvula*, Mann., *parva*, Sahlb.?, *Acrotoma pilosiventris*, Thoms., *stercoraria*, Kr., *Colpodota stercoraria*, Muls. et Rey). Black, rather dull, with the antennæ black or pitchy, and the legs pitchy; the elytra are also pitchy, pitchy black, or brownish; the species comes extremely close to the three preceding, and is best described by comparison with them: the points in which it differs from *H. muscorum* have just been noticed; from *H. aterrima* it differs by its rather smaller and narrower form, its rather less fine punctuation, and also by its shorter antennæ, which have the third joint proportionally shorter, and the penultimate joints a little more transverse; the hind body also in *H. pilosiventris* is more uniformly punctured; from *H. pygmæa* it differs by its darker antennæ, unicolorous hind body, of which the apex is not lighter, and also principally by the less elongate first joint of the posterior tarsi, and the strong exserted single seta of posterior tibiæ. L. $1\frac{3}{4}$ –2 mm.

Sexual characters obscure, much as in the preceding species.

In dung, dead leaves, &c.; rare; Birch Wood, Merton, Mickleham, Esher, Lee, Shirley, Caterham, Ashted, Leith Hill; Tonbridge; New Forest; Deal; Sherwood Forest (under bark, W. G. Blatch); Northumberland district, Wallington, &c.

GROUP 22.

The species contained in this group are characterized by having the hind body distinctly narrowed towards apex (in *H. subsinuata* not strongly so), and the thorax plainly narrowed in front: from the preceding group they are distinguished, among other things, by having the apical segments of the hind body sparingly punctured, or evidently more sparingly punctured than the others, which gives them, as a rule, a more shining appearance; except for *H. cribrata* they form a fairly natural group, now that *Brachida notha* has been removed from it (and from the genus *Homalota* altogether) to a much more natural position; the species are all found in moss, dead leaves, haystack refuse, &c.; they are of small size, ranging from $2\frac{2}{3}$ mm. (*H. laticollis*) to $1\frac{1}{3}$ mm. (*H. cribrata*).

H. laticollis, Steph. (*fusca*, Sharp l.c., *vernacula*, Er., *Atheta vernacula*, Thoms., *Colpodota (Solenia) vernacula*, Muls. et Rey). Fuscous, rather shining, with the head black, thorax fuscous, elytra yellowish, and hind body fuscous black, lighter at apex and sometimes at base; head rather broad and short, closely and distinctly punctured; antennæ yellow at base, dusky yellow towards apex, with joints 2-3 moderately long, fourth smaller than the others, 5-7 each a little longer than broad, 8-10 very slightly transverse, eleventh stout, hardly as long as the two preceding together; thorax broad, as broad at base as elytra, about twice as broad as long, narrowed in front, paler at sides, closely punctured, obscurely channelled, sometimes with a depression before scutellum; elytra not much longer than thorax, closely and rather distinctly punctured; hind body with segments 2-4 closely and rather finely, 5-6 sparingly punctured, shining; legs yellow, without outstanding setæ. L. $2\frac{2}{3}$ mm.

Male with the hind margin of dorsal plate of seventh segment furnished with four distinct equidistant teeth, the inner ones blunt at apex, the outer ones longer and sharper.

In moss, dead leaves, fungi, &c.; common and generally distributed throughout the kingdom.

H. subsinuata, Er. (*rustica*, Brisout, *castanipes*, W. C., *Acrotona fimetaria*, Thoms., *Colpodota (Solenia) subsinuata*, Muls. et Rey). Black, with front parts somewhat dull, elytra black or pitchy black, and the apex of hind body pitchy; distinguished from the allied species by its small head, and the closer punctuation of the hind body, and also by the fact that the hind body is distinctly less narrowed towards apex; head only about half as broad as thorax; antennæ blackish with first

joint pitchy, moderately short, but not stout, joints 2-3 rather long about equal, 4-10 each very slightly broader than the preceding, but the last of them are only slightly transverse, eleventh stout, about as long as the two preceding together; thorax at base about as broad as elytra, half as broad again as long, narrowed in front, rather closely and finely punctured, obsoletely channelled; elytra not much longer than thorax, closely and distinctly punctured; hind body with segments 2-4 rather closely and distinctly, 5-6 more sparingly, punctured; legs pitchy testaceous, intermediate tibiæ each with a short outstanding seta in the middle. L. $2-2\frac{1}{2}$ mm.

Male with the ventral plate of seventh segment of hind body a little produced in middle, female with the same part broadly emarginate, and furnished with distinct black cilia.

In moss and dead leaves, generally in the spring; not common; Notting Hill, Caterham, Mickleham, Birch Wood, Hampstead, Shirley, Cowley, Esher; Littleington, Sussex; Smallheath and Knowle, near Birmingham; Scotland, scarce, Forth district only.

H. montivagans, Woll. (*pulchra*, Kr., *Colpodota pulchra*, Muls. et Rey, sub-gen. *Acrotona*, Thoms.). Black, with the thorax fuscous, paler at sides, elytra testaceous with a large indistinct patch around scutellum, and the parts towards apical angles more or less broadly infusate, apex of hind body pitchy or yellowish; head black and shining, indistinctly punctured; antennæ rather slender, yellowish, first joint stout, 2-3 of about equal length, 4-10 nearly equal in length, the last slightly transverse, eleventh about as long as the two preceding together; thorax at base as broad as elytra, more than half as broad again as long, narrowed in front, sparingly punctured, very indistinctly impressed in middle of base; elytra plainly longer than thorax, rather coarsely but shallowly punctured; hind body black and shining, moderately narrowed behind, segments 2-4 sparingly but distinctly punctured, fifth more sparingly punctured, sixth almost impunctate, very long; outstanding setæ of segments distinct; legs yellow, tibiæ without setæ. L. $2\frac{1}{2}$ mm.

Sexual differences obscure; male with ventral plate of seventh segment of hind body narrowed and rather more produced than in female.

In moss, haystack refuse, dead leaves, &c.; rare; Sheerness, Charlton (Kent), Egham (Surrey), Red Hill, Hanwell, Cowley (in a cow-house), Birdbrook (Essex); The Holt, Farnham; Littleington (Sussex); Horning Fen; Knowle, near Birmingham (cow-shed refuse); Scotland, rare, Forth district (Braid Hills, Edinburgh).

As Wollaston's name has the priority over Kraatz's (as Dr. Sharp has pointed out, Ent. Mo. Mag. vi. 230), it must be retained; in the catalogue of Heyden, Reitter, and Weise it is not even mentioned as a synonym of *pulchra*, under which also *H. Sharpi* is included as synonymous with it: as, however, Dr. Kraatz considered *H. Sharpi* to be quite distinct from *H. pulchra* after having himself examined Mr. Rye's specimen,

there seems no reason to doubt that it is a good species; I would here remark that from the synonymy adopted by Heyden, Reitter, and Weise in their catalogue, and the way in which they have there dealt with several of Dr. Sharp's species, I feel certain that they have either not seen some of them at all, or have seen wrongly named specimens: through the kindness of Dr. Sharp, I have been enabled to examine all his actual type specimens as I have worked the group, and I may say that I feel sure that in several instances they would have modified their views, if they had had these types before them.

H. Sharpi, Rye. Black, shining, with the elytra chestnut-brown; head broad, but little narrower than the extreme width of thorax, black, very shining, with somewhat indistinct and shallow, but large and wide punctures; antennæ entirely black, longer and more slender than in *H. muscorum* (which species it rather resembles), apical joint acuminate and quite as long as the two preceding together; thorax more than half as broad again as long, convex, unchannelled, very finely punctured with shallow punctures like those of head interspersed; elytra plainly longer than thorax, chestnut-brown, darker at base, sides, and scutellum, rather dull, closely yet coarsely punctured; hind body black, shining, strongly and widely punctured, especially towards apex; legs yellowish, slightly infusate; the whole insect is clothed with short and rather depressed yellowish pubescence, and has moderately long lateral dark setæ. L. $1\frac{3}{4}$ –2 mm.

One specimen from the London district taken by Mr. Rye and described as above by him (Ent. Mo. Mag. vii. 7).

H. orbata, Er. (*Acrotona orbata*, Thoms., *Colpodota orbata*, Muls. et Rey = *fungi* ♀, teste H. R. W.). Very like *H. fungi*, but with darker antennæ, rather longer thorax, which is also more delicately punctured and pubescent, and with brownish elytra; the difference in punctuation and pubescence, however, is very slight; according to Mulsant and Rey the thorax is a little less strongly transverse than in *H. fungi*, more plainly narrowed in front, with the anterior angles more obtuse and rounded; the elytra are generally more depressed; the antennæ also have the fourth joint, as a rule, more oblong, and the penultimate joints very slightly longer; the sexual differences are obscure, and the same as in *H. fungi*: considering that *H. fungi* is a very variable species, it seems most probable that this is only one of its numerous varieties; in fact in some respects the vars. *dubia* and *clientula* have almost more right to be considered distinct. L. $2\frac{1}{2}$ mm.

Sandy places on the coast, under vegetable refuse; also inland; rare; Shirley, near Croydon; Esher; Dulwich; Deal; Whitstable; Weymouth; Ryde; Barrucane Bay, North Devon; Wallasey, near Liverpool; Northumberland district; Scotland, sandy places (? maritime), Forth and Tay districts; Ireland, Newcastle, co. Down (Champion).

H. fungi, Grav. (*Acrotona fungi*, Thoms., *Colpodota fungi*, Thoms.,

♀ *orbata*, Er. ?). Black, rather shining, with the elytra black, sometimes very obscurely pitchy, apex of hind body more or less obscurely yellowish; head small, finely and indistinctly punctured; antennæ testaceous, rather long and slender and hardly at all thickened towards apex, joints 2-3 rather long, of about equal length, fourth not so long as fifth, 5-10 differing but slightly in either length or breadth; in the type none of the joints are transverse; eleventh joint acuminate, as long as the two preceding together; thorax almost broader than elytra, half as broad again as long, convex, narrowed in front, finely but not closely punctured, with or without central channel; elytra slightly longer than thorax, closely and distinctly, but shallowly punctured; hind body shining black, segments 2-4 distinctly and rather closely punctured, fifth more sparingly, sixth sparingly, punctured; sides and apex with numerous outstanding setæ; legs yellow, posterior tibiæ without setæ. L. $2\frac{1}{2}$ mm.

Sexual differences obscure; male with apex of ventral plate of seventh segment of hind body narrower and more produced than in female.

In haystack refuse, moss, dead leaves, fungi, &c.; abundant throughout the kingdom; the black shining colour and yellow legs and antennæ will at once superficially distinguish this our commonest species of the genus.

V. dubia, Sharp. This variety has the antennæ a little shorter and slightly thickened towards the apex, with the penultimate joint slightly transverse, and the last joint a little stouter and less pointed; the thorax also is somewhat shorter, and the elytra, therefore, a little longer in proportion.

Found in company with, and more abundantly than, the type form.

V. clientula, Er. (*Homalota clientula*, Er.). Smaller than the type form, not so broad in the middle, with the antennæ in proportion to the size somewhat stouter with penultimate joints more transverse; the colour is brighter, the elytra being yellowish or brownish, and the thorax often fuscous; the sides of the thorax are lighter coloured than the disc; the apex of hind body is more broadly testaceous, and the apex of the segments is often light-coloured; the punctuation of the thorax and elytra, also, is somewhat closer and finer. L. 2 mm.

Not so common as the type form, but it cannot be called uncommon, and is quite as widely distributed; it is found in the same situations, and in company with it.

It seems rather doubtful whether this ought to be considered a distinct species or not; the *var. dubia* seems to form the connecting link between it and the type form.

H. orphana, Er. (*navicula*, Muls. et Rey, *Acrotoma orphana*, Thoms., *Colpodota orphana*, Muls. et Rey). Black, rather shining, with the elytra fuscous, or fuscous-black, and the apex of hind body more or

less obscurely lighter; allied to *H. fungi*, but much smaller, and proportionately broader; head rather broad and short, finely and indistinctly punctured, antennæ yellowish, or pitchy with yellowish base, distinctly thickened towards apex, third joint nearly as long as second, 4-5 about as long as broad, 6-10 transverse, the latter moderately strongly so, eleventh joint stout nearly as long as the two preceding together; thorax at base as broad as elytra, nearly twice as broad as long, narrowed in front, finely and rather closely punctured, with or without obsolete central channel; elytra longer than thorax, closely but very distinctly punctured; hind body with segments 2-4 closely and distinctly punctured, fifth rather more sparingly, sixth sparingly, punctured; legs pitchy testaceous, tibiæ without outstanding setæ. L. $1\frac{1}{2}$ mm.

Sexual differences obscure; male with the ventral plate of seventh segment of hind body a little more produced than in female.

In moss, haystack refuse, dead leaves, &c.; very rare; Sheerness (J. J. Walker); Weybridge (Champion); Hammersmith Marshes; Sheppy; Seaton Beach, Devon (Power); Holm Bush, near Brighton (Power).

H. cribrata, Kr. (sub-gen. *Microdota* (*Pycnota*), Muls. et Rey). A very small and distinct species, bearing a sort of resemblance to *Brachida notha*; it might well be placed in a group by itself; it is distinguished by its short broad form and the coarse sculpture of the head, thorax, and elytra; head rather broad, distinctly punctured; antennæ pitchy, rather short, but not very stout, second joint stout, much longer and thicker than third, 4-10 each a little broader than the preceding, and gradually more transverse, eleventh rather short and stout, not quite as long as the two preceding; thorax nearly as broad at base as elytra, nearly twice as broad as long, with sides and base rounded, narrowed in front, closely and distinctly punctured; elytra longer than thorax, rather strongly, although closely, punctured, punctuation slightly rugose, pubescence more distinct than on head and thorax; hind body broad, with sides somewhat rounded, distinctly narrowed to apex, segments 2-4 finely and distinctly punctured, fifth more sparingly, sixth very sparingly, punctured; legs pitchy testaceous. L. $1\frac{1}{3}$ mm.

Male with ventral plate of seventh segment of hind body considerably more produced than in female.

In moss, dead leaves, &c.; very rare; Shirley, near Croydon (Sharp); Scotland, Solway district, and Dee district (Braemar) (Sharp), Aviemore (Champion). Mr. Horner records the species doubtfully from Sherwood Forest.

SCHISTOGLOSSA, Erichson.

This genus contains one European species, which is chiefly separated from *Homalota* because of its mandibles, which are bifid or bidentate at apex; it is extremely rare as British; in appearance it somewhat resembles *Homalota eremita*, Rye, which was at first mistaken for it.

S. viduata, Er. Rather broad and parallel-sided, very finely pubescent, and with the front parts very finely punctured, dull black; head rounded, plainly narrower than thorax, antennæ dark testaceous or reddish with the first joint usually lighter, second and third joints of about equal length, 4-10 gradually a little thicker, but none of them transverse, last joint almost as long as the two preceding together; thorax broader than long with sides only slightly rounded, almost as broad as elytra, obsoletely impressed before scutellum; elytra about as long as thorax (in the only pair I have seen they are somewhat shorter in the female than in the male); hind body parallel-sided, finely and thickly punctured, but a little less so and therefore a little more shining than the front parts, sixth segment less closely punctured than the others; legs reddish testaceous. L. 3 mm.

Male with the dorsal plate of seventh segment of hind body granulate, truncate at apex, very finely crenulate, and furnished at each side with a minute tooth.

Very rare; as far as I know it has only been taken by Mr. Crotch; in Dr. Sharp's collection there is a pair labelled "Merton, Norfolk, G. R. C." It has been several times recorded from the Lake district, and from Scotland, but the insects referred to appear to have been *H. eremita*. (See Ent. Monthly Mag. ii. 46, 49, 88, &c.)

GNYPETA, Thomson.

This genus was formed by Thomson to include three or four European species that had previously been placed under *Homalota*; M. Fauvel has recently described a species from Australia, and Dr. Sharp has described three from Central America, which are similar in appearance to the European species, but, according to Dr. Sharp himself, two of them have the intermediate coxæ more distant: the genus is very closely related both to *Tachyusa* and to *Homalota*, and it is hard to formulate the distinctions between them; if, however, we include *Gnypeta* under *Homalota*, we can hardly help sinking *Tachyusa* as well.

1. Upper surface deep black, very shining *G. LABILIS*, Er.
2. Upper surface with a distinct bluish reflection, somewhat duller *G. CÆRULEA*, Sahlb.

G. labilis, Er. (*carbonaria*, Mann., nec Sharp). Black, very shining; head nearly as broad as thorax, antennæ moderately long, pitchy, with base sometimes lighter, slightly thickened towards apex, joints 5-10 nearly equal in length, the penultimate being scarcely as long as broad, eleventh about half as long again as tenth; thorax about as broad as long, considerably narrower than elytra, very finely punctured, with an impression before scutellum; elytra about one quarter longer than thorax, very finely punctured; hind body thickly and finely punctured throughout, sixth segment rather more distinctly than the front ones; legs yellowish with femora and more or less of tibiæ pitchy. L. $2\frac{2}{3}$ -3 mm.

Male with the head impressed and the ventral plate of seventh segment of hind body narrow, and distinctly produced.

On muddy banks of rivers and streams; common throughout the kingdom.

G. cœrulea, Sahlb. (*ripicola*, Kies., *carbonaria*, Sharp, l.c.). Very like the preceding, but rather larger, and not so shining, and of a distinct blue colour with the legs and antennæ entirely blue black except that the tarsi and sometimes the knees are more or less testaceous; the head is impressed in both sexes; in colour it much resembles *Tachyusa flavitarsis* and *Dianous*. L. 3 mm.

On banks of streams; very rare; banks of Derwent, near Derby (J. T. Harris); Charlton, near Manchester, and banks of Ballin, Cheshire (J. Chappell); Scarborough (Lawson); Northumberland district, the Wansbeck (Power); Scotland, banks of Nith (Sharp), Crook of Devon (Power).

TACHYUSA, Erichson.

As at present constituted this genus contains twenty-eight species, twenty from the European region, four from North America, two from Chili, and two from Central America; the species occur chiefly on the sandy banks of rivers and streams, and are exceedingly swift runners; the two sea-side species, *T. uvida* and *T. sulcata*, are now separated off under the genus *Myrmecopora*, Sauley (*Xenusia*, Rey).

Our British species may be divided as follows, but some of them are rather hard to distinguish by a table:—

- | | |
|---|--------------------------------|
| I. Hind body very strongly narrowed at base. | |
| i. Elytra longer; legs testaceous | <i>T. CONSTRICTA</i> , Er. |
| ii. Elytra shorter; legs pitchy red or brownish with tarsi lighter | <i>T. COARCTATA</i> , Er. |
| II. Hind body distinctly but not strongly narrowed at base | <i>T. SCITULA</i> , Er. |
| III. Hind body parallel-sided or narrowed towards apex. | |
| i. Upper surface with a strong bluish reflection | <i>T. FLAVITARSIS</i> , Sahlb. |
| ii. Upper surface black. | |
| 1. Upper surface shining; legs lighter | <i>T. UMBRATICA</i> , Er. |
| 2. Upper surface dull; legs darker. | |
| A. Eyes not prominent; head and thorax subquadrate; antennæ longer | <i>T. ATREA</i> , Grav. |
| B. Eyes prominent; head and thorax strongly transverse; antennæ shorter | <i>T. CONCOLOR</i> , Er. |

T. constricta, Er. Elongate, narrow, pitchy-black, shining, clothed with fine and rather long pubescence; head large, about as broad as thorax, narrowed behind, antennæ moderately long, more or less dark, with the basal joints testaceous, second and third joints about equal in length, penultimate joints slightly transverse; thorax longer than broad, almost oval, very finely and thickly punctured, plainly narrower than elytra; elytra distinctly longer than thorax, with shoulders rounded, very finely, thickly, and somewhat rugosely punctured; hind body strongly narrowed at base, where it is about half the breadth of the elytra, and

gradually enlarged behind, almost smooth in front, finely punctured towards apex; legs testaceous. L. $2\frac{2}{3}$ mm.

Male with the ventral plate of seventh segment of hind body prolonged in a blunt angle.

Sandy banks of rivers and streams; not uncommon, but rather local; Mickleham, banks of Mole; Tonbridge; Hastings; Bewdley Forest; South Wales; Cheshire; Repton, Burton-on-Trent; Scarborough; Northumberland district, "abundant in June and July on the banks of the Irthing and Till, and on the Devil's Water at Dilston;" not recorded from Scotland.

T. coarctata, Er. Resembles the preceding, but is a little less elongate, and rather stouter; the colour is generally darker; the elytra are shorter; the hind body is somewhat less contracted at base and more evidently punctured; the legs are pitchy red or brownish instead of being testaceous as in *T. constricta*: the male has the ventral plate of the seventh segment produced and rounded at apex. L. $2\frac{2}{3}$ mm.

Very rare; found under the same conditions as the preceding; Mickleham (banks of the Mole), two specimens taken by Dr. Power in 1862; Netherfield, near Hastings (E. A. Butler).

T. scitula, Er. (*forticornis*, Fairm.). Rather narrow, very finely and thickly pubescent and punctured, black, moderately shining; head large, nearly as broad as thorax, antennæ rather shorter than in some of the allied species, entirely testaceous, or somewhat fuscous towards apex, third joint a little shorter than second, penultimate joints hardly transverse; thorax almost square with the angles rounded, narrower than elytra; elytra scarcely longer than thorax, and a little more distinctly punctured; hind body plainly but not strongly narrowed at base and gradually and slightly widened behind, very finely, thickly and uniformly punctured; legs pitchy or brownish-red with the knees and tarsi testaceous. L. 3 mm.

Male with dorsal plate of seventh segment of hind body slightly sinuate, ventral plate rounded and slightly produced.

In damp sandpits, on the banks of rivers, &c.; rare; Shirley, near Croydon; West Wickham; Reigate; Bewdley; Constantine and Whalley, Lancashire; Northumberland district, banks of Irthing.

T. flavitarsis, Sahlb. (*leucopus*, Marsh). Of a dull black colour with a strong bluish reflection, very finely and thickly punctured and pubescent; head large, nearly as broad as thorax, antennæ rather long slightly thickened towards apex, blackish or dark reddish-brown, penultimate joints a little longer than broad; thorax almost square, with angles rounded, plainly narrower than elytra; elytra distinctly longer than thorax; hind body parallel-sided, very finely and uniformly punctured, narrowed at apex. L. $3\frac{1}{2}$ mm.

Male with ventral plate of seventh segment of hind body produced.

Banks of rivers; not uncommon; Mickleham, Lee, Tonbridge, Bearsted; Hastings; Dean Forest; Midland districts, common; Selby and Scarborough, Yorkshire; banks

of Mersey and Irwell; Northumberland district, rather common; Scotland, common, Tweed, Forth, and Solway districts.

T. umbratica, Er. Shining pitchy-black, with the elytra sometimes obscurely brown, finely and thickly pubescent and punctured; head large, subquadrate, about as broad as thorax, antennæ long, feebly thickened, joints 4–10 gradually a little broader but all longer than broad, brownish or pitchy-red; thorax almost square, narrower than elytra; elytra about as long as thorax, not so broad and squarer than in *T. flavitarsis*; hind body parallel-sided, very finely, thickly, and uniformly punctured; legs pitchy, knees, tarsi, and sometimes the entire tibiæ, testaceous. L. 3 mm.

Male with the ventral plate of seventh segment of hind body prolonged and rounded at apex.

Banks of streams and rivers; local, but not uncommon in some places; Mickleham (banks of the Mole); Weybridge (banks of the Thames); Tonbridge; Shipley, near Horsham; Lee; Hastings; South Wales; Bewdley; Tewkesbury; Northumberland district; recorded from the Tweed and Dee districts, Scotland, but Dr. Sharp considers it doubtful whether the specimens were correctly named.

T. atra, Grav. (*Thinonoma atra*, Thoms.). This species is easily distinguished from the preceding by its darker and much duller colour, and darker and more slender antennæ, of which the penultimate joints are longer; the general punctuation is distinctly finer; the elytra are broader in proportion to the thorax; the hind body is less parallel, with the sides somewhat rounded and plainly narrowed from the hinder portion of the fourth segment to apex; the legs are as a rule darker; the male has the ventral plate of seventh segment of hind body strongly rounded and much prolonged. L. 3 mm.

Marshy places, banks of streams, &c.; local, but not uncommon; London district, generally distributed; Deal; Coleshill; Cannock Chase; Eggington, near Burton-on-Trent; Repton; Scarborough; Manchester; Scotland, rare, Lowlands, in marshes, Tay and Solway districts; Ireland, Dodder Banks, near Dublin.

T. concolor, Er. (*Brachyusa concolor*, Muls. et Rey). This species resembles the preceding in colour and punctuation but is at once distinguished by its shorter and broader form, short and transverse head and prominent eyes, shorter antennæ, and short, broad, transverse thorax which is nearly as broad at base as base of elytra; the elytra are plainly broader than thorax, and are a little wider at apex than at base; the hind body is gradually and somewhat strongly narrowed towards apex; legs pitchy, knees and tarsi yellowish. L. 2–2½ mm.

Male with thorax broadly furrowed longitudinally, dorsal plate of seventh segment of hind body broadly emarginate, ventral plate much produced.

Marshy places; rare; first found in Britain by Dr. Power; it has only occurred hitherto in the London district: Hammersmith and Notting Hill Marshes, Lee, Barnes, Forest Hill, Mickleham, Chelsea, Eltham.

MYRMECOPORA, Saulcy. (*Xenusa*, Muls. et Rey).

The two species contained in this genus have until lately been united with *Tachyusa*; they differ in their very large head, narrow neck, more parallel and depressed form, shorter and less slender legs, &c., and also in their habitat.

Length 3 mm.; antennæ long with penultimate joints somewhat longer than broad **M. UVIDA**, Er.

Length 2 mm.; antennæ short with penultimate joints evidently transverse **M. SULCATA**, Kies.

M. uvida, Er. Depressed, parallel, front parts very finely punctured and pubescent, black, rather shining; head very large, as broad as thorax, strongly narrowed in front of eyes, antennæ long, lighter or darker red, second and third joints of about equal length, 4–10 gradually a little shorter and thicker, but not transverse; thorax subquadrate about as long as broad, narrowed in front to meet the neck of thorax, broadly impressed longitudinally in middle; elytra plainly broader than thorax, and about as long or somewhat longer; hind body parallel-sided rather distinctly and not closely punctured, especially behind; legs pitchy or pitchy-red with tibiæ and tarsi usually lighter. L. 3 mm.

Male with the thorax more broadly impressed than in female.

In decaying seaweed and among shingle on the coast, often below high-water mark; local but sometimes in great abundance where it occurs; Whitstable, Rochester, Sheerness, Southend; Southsea; Hythe; Southampton; Dawlish; Isle of Wight, in the greatest profusion in early spring, flying in the sun and settling on the rocks and pebbles at Ventnor; Northumberland and Durham districts, rare, sea-coast near Hartley in October; not recorded from Scotland; the single northern record is somewhat curious, and seems to require confirmation.

M. sulcata, Kies. Very like the preceding but much smaller and narrower with the antennæ much shorter in proportion and having the penultimate joints transverse, and the last joint more oval; the elytra are somewhat longer in proportion to the thorax, and the thorax is more narrowed behind. L. 2 mm.

Found under the same circumstances and often in company with the preceding; not so common perhaps but more widely distributed; Whitstable; Rochester; Southsea; Weymouth; Isle of Wight; Falmouth; Watermouth (Devon); Dawlish; Hunstanton and Heacham, Norfolk (in abundance in the latter locality); Scarborough (Cornelian Bay); Northumberland district, rare; Scotland, rare, Clyde district "under seaweed near Corrie in Arran" (Sharp).

BORBOROPORA, Kraatz.

This very distinct genus has somewhat of the facies of a *Scopæus*, but is more nearly allied to *Falagria*: it may be distinguished from any known genus of the Aleocharidæ by the very large subquadrate head, and by its long and slender mandibles, of which the right hand one only has on the inner side below the middle a very large strong tooth, the

left hand one being attenuate and toothless; the labial palpi are sub-acuminate at apex; at present two European species are contained in the genus; one specimen only, belonging to the originally described species, has been found in Britain.

B. Kraatzi, Fuss. (*Sauleyi*, Kraatz). Depressed, nigro-piceous, shining, with grey pubescence, elytra and legs pitchy-brown; head large and broad, transversely subquadrate; forehead deeply channelled; thorax narrower than the head and elytra, deeply foveolate at the base, and obsoletely channelled; hind body very finely punctured. L. 3 mm.

Very rare; a single specimen was taken by Dr. Power at Mickleham on July 13, 1862, and remains unique as British; it was captured by evening sweeping; when Dr. Power introduced his insect as British, only seven specimens were known to exist in the Continental collections, one from near Paris, and six from Germany, which latter were taken under half-dried dung and the carcase of a toad.

FALAGRIA, Stephens.

This genus, as it stands at present, comprises about sixty species, which are distributed over most parts of the world; Dr. Sharp, however, (Biol. Cent. Am. Staphylinidæ, p. 232) is of opinion that it must undergo dismemberment, as examination proves that those European forms for which the name was first proposed possess the peculiarity of having the prosternum behind the front coxæ entirely corneous, whereas in many other forms that have been included in the genus it is entirely membranous; these latter, therefore, must be removed from the genus *Falagria*; as thus constituted the genus is not found in South America, but is otherwise widely distributed; the species occur in marshy places, under vegetable refuse, in hotbeds, &c., and are, as a rule, easily distinguished by their large heads and deeply sulcate thorax; four species are found in Britain which may be distinguished as follows:—

- I. Scutellum with two parallel longitudinal raised lines, placed near together, and presenting the appearance of a deep furrow; thorax very deeply sulcate.
 - i. Elytra longer than thorax; form broader; elytra very closely punctured, duller F. *SULCATA*, Payk.
 - ii. Elytra rather shorter than thorax; form narrower; elytra less closely punctured, shining F. *SULCATULA*, Grav.
- II. Scutellum without raised lines.

Thorax not strongly cordiform, gradually narrowed to base; elytra almost square, without impression between shoulders and scutellum; thorax sulcate in both sexes . F. *THORACICA*, Curt.

Thorax very strongly cordiform, very much narrowed at base; elytra plainly transverse, strongly impressed between shoulders and scutellum; thorax sulcate in male, convex and smooth in female F. *OBSCURA*, Grav.

F. sulcata, Payk. Pitch-black, rather shining, very finely and thickly punctured, finely pubescent; head large, almost straight at sides, and narrowed in front of eyes, antennæ about as long as head and thorax together, brownish, with base a little lighter, slightly thickened with the

penultimate joints hardly transverse; thorax cordiform, about as broad in front as long, with a broad deep longitudinal furrow; scutellum with two longitudinal raised lines; elytra a little longer than thorax; hind body slightly broader behind than before, very finely punctured, with front segments longitudinally impressed and crenulate at base; legs lighter or darker testaceous. L. $2\frac{1}{4}$ mm.

In haystack refuse, hotbeds, and vegetable rubbish generally; very abundant throughout the greater part of England and Wales; not so common further north; Scotland, local, Forth, Solway, and Clyde districts; Ireland, near Dublin and probably widely distributed.

F. sulcatula, Grav. Smaller and narrower than the preceding, more sparingly punctured and pubescent, and therefore much more shiny; the elytra are sometimes brownish, and the legs are light testaceous or a little reddish; the antennæ have the base lighter than in *F. sulcata*; besides these points, the thorax is narrower and longer in proportion, and the punctuation, especially of the elytra, is distinctly less close. L. 2 mm.

Marshy places in moss, &c., also in damp haystack refuse; local, and not nearly as common as the preceding. Chatham, Sheerness, Walton-on-Thames, Southend, Shipley, near Horsham, Faversham, Cowley; Deal; Exeter; Wicken Fen; Tewkesbury; Knowle, near Birmingham; not recorded from the northern districts or Scotland.

F. thoracica, Curt. Resembles the two preceding in form, but is easily distinguished by its pitchy-red colour, the thorax being usually light-reddish testaceous, and the elytra darker than thorax but lighter than head and hind body; the antennæ and legs are reddish testaceous or testaceous, the former being usually a little darker after the first two or three joints; the thorax is deeply furrowed in both sexes; the scutellum is without the two raised lines so conspicuous in the preceding species; the elytra are a little longer than the thorax; the hind body is a little less thickly punctured in front than behind and is rather widened towards apex. L. $2-2\frac{1}{4}$ mm.

Under stones, by sweeping, &c.; local and somewhat widely distributed but not common; Mickleham, Birch Wood, Purley Downs, Tilgate Forest, St. Peters, Kent (in decaying seed potatoes); Southend; Dover; Lulworth, Dorset; Birmingham district, Edgbaston, &c.; Bewdley; Matlock; Hunstanton; Northumberland district, very rare; not recorded from Scotland. Ireland, Bray, co. Wicklow.

F. obscura (*Cardiola obscura*, Muls. et Rey). In colour this species much resembles the preceding, except that the thorax is of a darker reddish colour; the antennæ are entirely reddish testaceous; it may easily be distinguished by its more transverse head, more strongly cordiform thorax, which is more convex and much more distinctly narrowed behind, and much broader elytra, which are more transverse, and are strongly impressed between the shoulders and scutellum; the hind body has the sides slightly rounded and is widest about middle; the legs are long, entirely testaceous; in the male the thorax is distinctly furrowed

longitudinally, whereas in the female it is quite smooth; the head also is impressed in the former sex and not in the latter; the male also has the ventral plate of the seventh segment of hind body somewhat prolonged, L. $2\frac{1}{4}$ – $2\frac{1}{2}$ mm.

In haystack refuse, decaying seaweed, and vegetable rubbish generally; common and widely distributed throughout the greater part of England and Wales; more local further north; Scotland, local, Forth, Solway, and Clyde districts.

BOLITOCHARINA.

The members of this tribe have the anterior and intermediate tarsi 4-jointed, and the posterior tarsi 5-jointed; they differ very much in general appearance and some of them are amongst the most abnormal of the Staphylinidæ; the name of this tribe, or that of the preceding, is misleading, for they are by no means exclusively found in fungi or boleti, as many of the species occur under bark and vegetable refuse, and in various situations; the genus *Brachida* was formerly included under *Homalota*, and *Sipalia testacea* has in our catalogues been considered to be a *Leptusa*; it is, however, evidently distinct from that genus, and I have followed Sharp and Mulsant and Rey in referring it to *Sipalia*; there are sixteen British genera contained in the tribe; their differences are rather hard to express in words, but a cursory study of type specimens will at once show how widely they differ; the last genus *Myllæna* is described together with *Gymnusa* and *Deinopsis* at the end of the Aleocharinæ.

- I. Labial palpi of the ordinary form, or filiform;¹ hind body not terminating in two styles; form more or less parallel.
 - i. Prosternum rather strongly developed in front of anterior coxæ; temples not bordered at the sides *AUTALIA*, *Steph.*
 - ii. Prosternum scarcely developed in front of anterior coxæ; temples finely bordered at the sides.
 1. Anterior and intermediate tibiæ simply ciliate or pubescent.
 - A. Intermediate coxæ distant; eyes more or less prominent.
 - a. Mesosternal plate narrowed in middle and dilated laterally towards extremity; (habitat under refuse at roots of grass, &c.)
 - a.* Hind body with sharp and strongly reflexed lateral border; antennæ shorter *ENCEPHALUS*, *Westw.*
 - b.* Hind body with thick and blunt lateral border; antennæ longer *BRACHIDA*, *Rey.*
 - b. Mesosternal plate narrowed from base to apex (habitat in fungi or boleti).
 - a.* Ligula entire *GYROPHÆNA*, *Mannh.*
 - b.* Ligula bifid *AGARICOCCHARA*, *Kraatz.*

¹ As in *Silusa*.

- B. Intermediate coxæ contiguous.
- a. Labial palpi 2-jointed.
- a.* First joint of posterior tarsi elongate, at least as long as the two following; labial palpi short, first joint thickened *PLACUSA, Er.*
- b.* First joint of posterior tarsi equal or nearly equal to the following; labial palpi rather long, first joint not thickened.
- a.† Ligula entire; third joint of maxillary palpi not or slightly dilated.
- a.‡ Thorax slightly narrowed behind, about as broad at apex as at base; elytra square; body depressed *EPIPEDA, Rey.*
- b.‡ Thorax scarcely narrowed behind, broader at base than at apex; elytra transverse; body rather convex *SILUSA, Er.*
- b.† Ligula broad and triangular, bifid; third joint of maxillary palpi very strongly dilated *ACTECHARIS, Janson.*
- b. Labial palpi 3-jointed.
- a.* Intermediate coxæ more or less distant; insect winged.
- a.† Ligula entire; mesosternum not carinate.
- a.‡ Thorax wider than elytra, not narrowed behind *EURYUSA, Er.*
- b.‡ Thorax slightly narrower than elytra, narrowed behind *LEPTUSA, Kraatz.*
- b.† Ligula bifid; mesosternum carinate; thorax plainly narrower than elytra *BOLITOCHARA, Mannh.*
- b.* Intermediate coxæ contiguous; insect apterous *SIPALIA, Rey.*
2. Anterior and intermediate tibiæ armed with spines on their outer margins *PHYTOSUS, Curt.*
- II. Labial palpi setiform; hind body terminating in two styles; form fusiform (like a *Conurus*). *MYLLÆNA, Er.*

AUTALIA, Stephens.

This genus contains five European species and one or two from the East Indies; three are found in Britain; they have somewhat the appearance of *Falagria*, but are distinguished by having the thorax strongly narrowed to a point in front, and by the large convex elytra which are deeply furrowed at base; the ligula of this genus is very peculiar, being very long and furnished at the end with long spinous processes; with a little care it may easily be dissected out and forms a beautiful microscopical object.

The species occur in dung, vegetable refuse, decaying fungi, &c.

- I. Upper surface pitchy-red, with the head and apical portion of hind body black *A. IMPRESSA, Ol.*

II. Upper surface entirely black.

1. Thorax less evidently punctured, with central furrow more or less distinct throughout *A. RIVULARIS*, Grav.
2. Thorax more evidently punctured, with central furrow only perceptible anteriorly *A. PUNCTICOLLIS*, Sharp.

A. impressa, Ol. Pitchy-red with the head and apical portion of hind body black, extreme apex testaceous; head large, a little broader than thorax, antennæ moderately long, fuscous or dark red with three or four basal joints lighter, evidently thickened towards apex, joints 5–10 transverse; thorax about as long as broad but suddenly narrowed to a point in front, much narrower at base than elytra, obsoletely punctured, with a more or less obsolete central furrow (sometimes wanting) and three furrows or impressions on each side of this; elytra broad and convex, broader than thorax, strongly furrowed at base, very obsoletely punctured, almost smooth; hind body much narrower than elytra, enlarged behind, almost smooth; legs testaceous or reddish testaceous. L. 2 mm.

In decaying fungi; generally distributed and common throughout the kingdom, especially in autumn.

A. rivularis, Grav. Closely allied to the preceding in form, but smaller, of a uniform black colour, with the antennæ somewhat less thickened towards apex, and the thorax with more pronounced central furrow and otherwise somewhat differently sculptured; the elytra are proportionately a little longer, and the hind body is more parallel sided and less widened behind; the pubescence of the front parts is a little longer and more scanty; the legs are lighter or darker pitchy testaceous. L. $1\frac{1}{2}$ mm.

In moss, haystack refuse, dung, &c., and frequently by evening sweeping; not as abundant as the preceding, but common and generally distributed in England; Scotland, common, Tweed, Solway, Forth, and Clyde districts; Ireland, near Belfast and Dublin, and probably common.

A. puncticollis, Sharp. Very like the preceding both in form and colour, but as a rule larger; in the point of size, however, it varies very considerably; it may be easily distinguished by the more evidently punctured thorax, the central furrow on which is only perceptible in front; the lateral foveæ, also, are not deeply impressed, and those at the base of the elytra are shorter; the pubescence is more evident and thicker, and the apex of the hind body is concolorous. L. $1\frac{1}{2}$ –2 mm.

A northern species: "Northumberland district, two specimens taken on the Cheviot Hills by Mr. James Hardy in July" (Bold). Scotland, common in sheep-dung in the Highlands, Solway, Clyde, Forth, Tay, Dee, Moray, and Orkney districts: it has also occurred in Sweden, Norway, and Iceland.

ENCEPHALUS, Westwood.

This very peculiar genus contains only two or three species, which are

remarkable for their peculiar broad thick ovate form, and the very strong raised margins of the hind body : they have the power of turning the hind body over the whole of the rest of the body and thus enclosing it within these raised margins ; in this position they form a sort of ball and may easily be mistaken for small species of *Agathidium* ; the genus is perhaps more closely connected with *Gyrophæna* than with any other, but differs in many important points, notably in its shorter thorax and much shorter elytra, and in the fact that the intermediate coxæ are more widely distant.

E. complicans, Westw. Of a short, thickset, oval form, almost smooth, shining black, with the elytra usually reddish towards suture ; head much narrower than thorax, antennæ very short, testaceous or reddish, penultimate joints strongly transverse ; thorax very transverse, but much narrower in front than at base where it is three times as broad as long ; elytra about as long as thorax, very transverse, almost smooth or very finely shagreened ; hind body with sides rounded and narrowed behind, very strongly margined ; legs ferruginous, posterior femora sometimes darker. L. 2 mm.

Male with the seventh dorsal segment of hind body furnished on each side with a spiniform tooth.

In moss, flood refuse, &c., also by sweeping ; usually considered rare, but it is very widely distributed, and I have records of about forty localities for it in Britain, and could doubtless obtain more ; London district, general ; Hastings ; Glanvilles Wootton ; Birmingham district, Repton, Needwood and Sherwood Forests and other localities : Hunstanton ; Church Stretton ; Scarborough ; Manchester ; not recorded from the Northumberland district ; Scotland, scarce, among moss, Lowlands, Tweed, Forth, Solway, and Moray districts ; Ireland, Belfast, Galway, Dublin, and Portmarnock.

In consequence of the very peculiar appearance of this insect it is seldom passed over, as it is quite unlike any other of the British Staphylinidæ ; it therefore naturally appears to be more widely distributed than many others which, from their similarity to common species, are neglected, and perhaps in many cases considered very rare, whereas in time to come they may be found to be comparatively common.

BRACHIDA, Rey.

This genus was formed to include the anomalous *Homalota notha*, which is plainly allied to *Encephalus* on the one hand, and to *Gyrophæna* on the other ; it is abundantly distinct from *Homalota* by reason of its short thick form, prominent eyes, more widely separated intermediate coxæ, and above all by the intermediate tarsi being 4-jointed, a fact which seems to have been overlooked : *B. notha* has a little in common with *Homalota cribrata*, but it seems probable that this latter species may form the type of a separate genus ; when alive it doubles up the hind body over the head in exactly the same manner as *Encephalus complicans*. The genus now comprises one European, three

Australian, and three American species, and may ultimately be found to be of large extent.

B. notha, Er. Short and broad, somewhat ovate, finely and rather sparingly pubescent, shining black, or pitchy-black, with the apex of basal segments of hind body sometimes lighter; head broad, but much narrower than thorax, eyes prominent, antennæ moderately long, thickened, fuscous towards apex, basal joints reddish, penultimate joints reddish; thorax very short, more than twice as broad as long, nearly as broad as elytra, finely and indistinctly punctured; elytra very transverse, about as long as thorax, rather closely and distinctly punctured; hind body flat above and convex beneath, with sides rather strongly and bluntly raised, the margins of the segments finely and indistinctly punctured; legs reddish-yellow. L. 2 mm.

Male with each elytron furnished at apex near suture with a distinct tubercle, apex of dorsal plate of seventh segment of hind body with a notch in the middle.

At roots of grass and beneath rejectamenta on river banks; has also been taken by sweeping herbage: very rare; found at Chatham on the banks of the Medway by Mr. Brewer, and at Folkestone by Mr. Rye.

GYROPHAENA, Mannerheim.

This genus contains about eighty species, of which Dr. Sharp has lately described twenty from Central America (l. c., p. 254): there are about sixteen European species, eleven of which are found in Britain; the others are found in Ceylon, Austro-Malasia, Japan, and North and South America, so that in all probability the genus will prove to be spread over nearly the whole world: all the species known inhabit fungi; they are distinguished by their short broad form, broad head (which is usually short and has the eyes very prominent), and short thorax and elytra; they have the power of curling their hind body over their thorax, but not so perfectly as the species belonging to the two preceding genera: Dr. Sharp is of opinion that the forests of tropical America will be found to be the headquarters of the genus, and points out the curious fact that in the numerous tropical species the sexual armature of the terminal segments of the hind body is as peculiar in the female as in the male: in no genus is the sexual armature more important, perhaps, than in *Gyrophæna*, but in the European species the females present no peculiarities; in some of the tropical species the male armature may be very similar, but in the females it is very dissimilar, and so seems to separate the species.

The following table may help roughly to distinguish the British species, but some of them are very closely allied and require careful study:—

- I. Head strongly transverse, suddenly and obliquely contracted behind eyes, which are very prominent, and are separated from thorax by a very short space.

- i. Antennæ with joints 6-10 not or slightly transverse, thorax punctured in two rows.
 - 1. Elytra almost smooth; upper surface testaceous with the head, postero-external angles of elytra, and a narrow band on hind body, pitchy. *G. PULCHELLA, Heer.*
 - 2. Elytra sparingly but distinctly punctured; upper surface pitchy red or brownish with base of elytra lighter *G. AFFINIS, Sahlb.*
- ii. Antennæ with joints 6-10 more or less strongly transverse.
 - 1. Base of thorax more or less punctured *G. POWERI, Crotch.*
 - 2. Base of thorax not punctured.
 - A. Elytra distinctly, thickly, and somewhat rugosely punctured; thorax with two rows of punctures on disc.
 - a. Fourth joint of antennæ hardly transverse not much narrower than the fifth, 5-10 moderately strongly transverse; upper surface generally lighter *G. GENTILIS, Er.*
 - b. Fourth joint of antennæ plainly transverse, much narrower than fifth, 5-10 strongly transverse; upper surface generally darker *G. NANA, Payk.*
 - B. Elytra finely, and hardly rugosely punctured, with the interstices plainly shagreened; upper surface mostly reddish testaceous; hind body almost smooth.
 - a. Thorax with two rows of punctures on disc; length 2 mm. *G. CONGRUA, Er.*
 - b. Thorax sparingly and diffusely punctured; length 1 mm. *G. MINIMA, Er.*
 - C. Elytra smooth or almost smooth on disc, obsoletely punctured towards postero-external angles; thorax with two rows of punctures.
 - a. Length 2 mm.; thorax and hind body more or less testaceous or brownish testaceous: hind body smooth *G. LÆVIPENNIS, Kr.*
 - b. Length $1\frac{1}{3}$ mm.; thorax and hind body black; hind body closely and obsoletely punctured *G. LUCIDULA, Er.*
 - D. Elytra closely and uniformly punctured: upper surface entirely black: length 1 mm.; hind body rather thickly punctured *G. MANCA, Er.*
- II. Head not, or feebly, transverse, gradually contracted behind the eyes, which are scarcely prominent, and are separated from thorax by a rather wide interval, colour entirely pitch-black *G. STRICTULA, Er.*

In all the following species of *Gyrophæna* (with the exception of *G. strictula*) the head is strongly transverse, with the eyes prominent, and in all the species the thorax is much broader than long, and narrower than elytra, with the sides rather strongly rounded; the head, thorax, and elytra are nearly always plainly shagreened between the punctures: for a detailed account of the British species the student is referred to the valuable paper on them by Mr. G. R. Waterhouse in the Entomological Society's Transactions for 1861 (p. 241), to which I am much indebted in the following descriptions; the differences in the seventh segment of the hind body in the males of the various species are exceedingly important,

but are hard to observe in dead and dry specimens, as, unless the segment is fixed in its place while supple with strong gum, it runs up into the sixth segment: these sexual differences are mostly figured by Mulsant and Rey, "Brévipennes Aléochariens," 1871, pl. i.

G. pulchella, Heer. Testaceous, with the head, postero-external angles of elytra, and one or two segments before apex of hind body, pitchy; thorax with disc darker than sides; antennæ testaceous, rather long, slightly thickened from the fifth joint, joints 5-7 not transverse, 8-10 hardly transverse; thorax with two rows of punctures on disc, the central punctures being obsolete; elytra nearly smooth; hind body smooth towards base, in female very finely punctured towards apex; legs pale testaceous. L. $2-2\frac{1}{2}$ mm.

Male with the sixth segment of hind body furnished with a raised area in the form of a horseshoe open towards base, seventh segment strongly emarginate at apex, the emargination being bounded by two long convergent processes, and bearing on its edge two minute teeth.

In fungi, rare; Coombe Wood, Esher, West Wickham; the species was first introduced as British by Dr. Power, and has only occurred in the London district.

This species is distinguished from *G. affinis* by its rather larger form and relatively longer thorax and elytra, the latter being much more finely punctured; from all the other British *Gyrophænae* it is distinguished by its long antennæ, of which the intermediate joints are not transverse.

G. affinis, Mann. Pitchy-testaceous, with the head, thorax, posterior angles of elytra, and segments of hind body before apex, pitchy; antennæ testaceous, with joints 5-10 not or hardly transverse; thorax with two dorsal rows of punctures and some strong scattered punctures at sides; elytra more strongly transverse than in the preceding species, and diffusely, but much more distinctly, punctured, the punctures being large and shallow; hind body smooth; legs testaceous. L. 2 mm.

Male with the sixth segment of hind body furnished with a small tubercle towards apex, seventh terminated by two long projecting processes which are somewhat incurved at apex.

In fungi; not uncommon and widely distributed. London district, common; New Forest; Glanvilles Wootton; Midland districts, not uncommon; Llangollen; Lincoln, Nocton Wood, in abundance; Wallington, Northumberland; Scotland, Forth, Solway, and Moray districts.

G. Poweri, Crotch (*puncticollis*, Thoms., *punctulata*, Rey). Testaceous; head, postero-external angles of elytra, and fifth segment of hind body, pitchy; head with rather large scattered punctures; antennæ testaceous, a little darker towards apex, with joints 5-10 strongly transverse; surface of the thorax with fine, rather widely-scattered punctures, base more thickly punctured; elytra transverse, rather finely and thickly punctured and pubescent; hind body smooth or almost smooth; legs testaceous. L. $1\frac{1}{2}$ mm.

Male with sixth segment of hind body furnished with four short ridges, seventh segment with four rather long, slender processes, the middle pair near one another, and the outer pair somewhat convergent; immediately above the middle pair are two small tuberculiform processes, which do not project beyond the apex of the segment.

In fungi; September and October; rare: Esher, Caterham, Mickleham; first introduced as British by Dr. Power.

In male characters this species approaches *G. fasciata* and *G. gentilis*, but differs from both in having the thorax furnished with minute scattered punctures throughout, and in the punctures of the dorsal row being obsolete.

G. gentilis, Er. (*congrua*, Thoms., nec Er.). Rufo-testaceous; head and postero-external angles of elytra black; thorax and fourth and fifth segments of hind body pitchy; head strongly and sparingly punctured at sides; antennæ reddish testaceous, with the four first joints paler, 5-10 strongly transverse; elytra thickly and finely rugose-punctate; hind body smooth; legs testaceous. L. $2\frac{1}{2}$ mm.

Male with a row of four small ridges or prominences at the apex of sixth segment of hind body, seventh segment terminated by four slender processes, the inner ones approximate, the outer ones longer, and incurved at apex.

In fungi; rather common; Birch Wood, Mickleham, Darenth Wood, Weybridge, Hawkhurst, Chatham, Bexley, Westerham, Box Hill, Coombe Wood, Dulwich; Glanvilles Wootton, Dorset; New Forest; Knowle, near Birmingham; Leicestershire; Repton; Hampton-in-Arden; Scarborough; Northumberland district, common; Scotland, local, Forth, Solway, and Moray districts.

This species resembles *G. nana*, but is rather larger and has the antennæ rather longer, with the intermediate joints less strongly transverse; the fourth joint of the antennæ is subglobose, and the elytra are rather finely and thickly punctured, with the punctuation rugose, and with a few scattered indistinct larger punctures.

G. nana, Payk. Prevailing colour black; elytra (except the postero-external angles) and basal half of hind body testaceous; antennæ reddish testaceous with base lighter; legs yellow; head strongly and sparingly punctured at sides, antennæ with joints 5-10 strongly transverse; thorax with two rows of punctures on disc, which are distinctly interrupted in the middle; elytra very strongly transverse, finely, thickly, and somewhat rugosely punctured, the punctuation being a little less close and stronger towards the postero-external angles; hind body smooth. L. $2-2\frac{1}{4}$ mm.

Male with a row of four short longitudinal ridges on the sixth segment of hind body, seventh armed at apex with three projections, the lateral spiniform, a little convergent, the central rather shorter, and sometimes bifid; the male armature of this species appears to differ somewhat in

different specimens; the colour of the upper surface is much blacker in some specimens than in others.

In fungi; not uncommon; Esher, Dulwich, Bishops Wood, Weybridge, Reigate; Tonbridge; Glanvilles Wootton; Knowle, Tewkesbury, Tamworth, Cannock Chase, and other Midland localities; Hunstanton; Manchester; Repton; Northumberland district; Scotland, Forth, Solway, and Moray districts.

G. fasciata, Marsh (*congrua*, Er., *carpini*, Baudi., *despecta*, Rey). Testaceous; head pitchy black, with scattered punctures; thorax fuscous or fusco-testaceous, with two rows of punctures on disc; elytra pale testaceous, with the outer margin (excepting near and at the shoulder) black, very strongly transverse and finely punctured, the punctures being more diffuse in front and closer and somewhat rugose towards apex; hind body with fifth segment and part of fourth and sixth segments black, almost smooth. L. $1\frac{3}{4}$ –2 mm.

Male with a row of six minute short ridges near the apex of the sixth segment of hind body, seventh segment with a long acute and slender tooth on each side, widely separated.

In fungi; rather common; Birch Wood, Darenth Wood, Chatham, Mickleham, Weybridge, Caterham, Coombe Wood, Esher, Tilgate; Southern district; Tewkesbury; Knowle; Hunstanton; Northumberland district, rare; Scotland, Forth, Solway, and Moray districts.

Very like *G. nana* but smaller, with the general colour paler, except that the antennæ are darker towards apex than in that species; the intermediate joints of antennæ are somewhat less transverse, and the punctures on the elytra are fine and less numerous; the male characters are totally different.

G. minima, Er. This species may at once be distinguished from all the other pale-coloured species by its very small size; it is rufo-testaceous, with the head, posterior angles of elytra, and segments of hind body before apex, pitchy; head rather sparingly punctured at the sides; antennæ with sixth joint strongly, 6–10 very strongly, transverse; thorax very strongly transverse, fully twice as broad as long, with punctures irregularly scattered over the surface; elytra finely and not thickly punctured; hind body almost smooth; legs pale testaceous. L. 1 mm.

Male with four short ridges on sixth segment of hind body, seventh segment terminated with three teeth, the outer pair slightly incurved at apex, the inner one in the centre forming a triangular plate; according to Waterhouse there are two teeth in the centre placed near together. Mulsant and Rey appear to be right in their description, but in some lights the male characters present a different appearance to what they do in others, and the broad central tooth in a cross light might easily be supposed to be divided, even if this be not actually the case in some specimens.

In fungi; rather common; Birch Wood, Chatham, Weybridge, Esher, Shirley, Bishops Wood, Addington; Dean Forest; Tamworth; Repton; Markfield, Leicester-

shire; Lincoln; Northumberland district, Gosforth, &c., not rare; Scotland, very rare, a single specimen found near the junction of the Nith and Scar, Solway district, by Dr. Sharp, August 22nd, 1867.

G. lævipennis, Kr. Testaceous: head, postero-external angles of elytra, and penultimate segments of hind body, pitchy; thorax reddish pitchy; head with a few scattered punctures; antennæ with the intermediate joints not so transverse as in some of the allied species; thorax with two series of punctures on disc, the intermediate ones somewhat obsolete; elytra smooth, impunctate, except at the postero-external angles, which are obsoletely punctured; hind body almost smooth; legs testaceous. L. 2 mm.

Male with two or four very minute tubercles at the apex of the sixth segment of hind body, seventh sinuate or somewhat angularly emarginate at apex.

The smooth elytra of this species will distinguish it from all the others.

In fungi; rather local and not so common as some of the other species; London district, rare, Snodland (Kent), Shirley, Mickleham, Coombe Wood; Tonbridge; Hastings; Hampshire; Gumley, Leicestershire; Knowle, Tewkesbury; Repton; Northumberland district, abundant (Bold); Scotland, rare, six specimens only found on the Corstorphine Hills, Forth district, by Dr. Sharp, June 12th, 1866.

G. lucidula, Er. A small species, easily distinguished by its colour; entirely black or pitchy-black with the elytra testaceous, more or less broadly margined with black at the sides and base; antennæ fuscous with base testaceous; legs testaceous; head almost impunctate; thorax very short, with two distinct punctures on the hinder part of the disc marking the position of the two dorsal series which are otherwise wanting or indistinct; elytra impunctate, except towards the postero-external angles which are obsoletely punctured; hind body very finely and obsoletely punctured towards apex, almost smooth towards base. L. $1\frac{1}{3}$ mm.

Male with the sixth segment of hind body obsoletely and finely granulate; seventh segment emarginate and terminated on each side by a strong sharp tooth, the base of which is broad and stout.

In flood refuse, &c., in marshy places; very local; Lee, Eltham, Snodland; formerly in Hammersmith and Notting Hill Marshes; Scarborough; it appears not to have occurred in fungi in Britain as at present observed, but according to Mulsant and Rey it inhabits boleti and fungi attached to trees, and prefers cold and mountainous regions; the species was first taken in Britain by Dr. Power.

The species is like a very small and dark specimen of *G. nana*, but besides other points, it has the intermediate joints of the antennæ less strongly dilated.

G. manca, Er. Entirely dark pitchy-black, with the antennæ, legs, and apex of hind body testaceous; antennæ with fifth joint strongly, 6-10 very strongly transverse; thorax very short, diffusely punctured over

its whole surface; elytra very short and transverse, thickly and finely punctured; hind body closely and very finely punctured. L. 1 mm.

Male with the seventh segment of hind body terminated by two widely separated spines, which are broad at base, and sharp and convergent at apex.

In fungi, and under bark of old fungus-grown stumps; very local; Thornton Reservoir, near Markfield, and Gumley, Leicestershire; Wicken Fen; Salford Priors, Evesham; Repton; Lincoln (in abundance, in boleti growing on an old stump by the side of the road between Lincoln and Langworth); Northumberland district, very rare; the only southern locality recorded is Littlington, Sussex, and it has not been found in the London district or in Scotland.

G. strictula, Er. (*Phænogyra strictula*, Muls. et Rey, *polita*, Grav., var. cat. H. R. W., *brevicornis*, Rey). Entirely pitchy-black, and in general appearance resembling the preceding; the head, however, is much less transverse and less suddenly contracted behind the eyes which are not nearly so prominent; the head, thorax, and elytra are very distinctly alutaceous and therefore comparatively dull: antennæ and legs testaceous; thorax with very indistinct traces of the two dorsal rows of punctures which are sometimes quite obsolete, except for two rather strong punctures on the posterior third; elytra a little longer in proportion to the thorax than in *G. manca*, with very minute scattered punctures; hind body almost smooth, except that the sides of each segment are very finely and obsoletely punctured; the shoulders of elytra and apex of hind body are often reddish. L. $1\frac{1}{3}$ mm.

Male with four or six short ridges on sixth segment of hind body, seventh segment armed at apex with two sharp, rather stout, teeth, convergent and enclosing a broad emargination.

In boleti; local; Maidstone, Mickleham, Epping Forest, Darenth Wood; The Holt, Farnham; Dean Forest; Evesham district; Scotland, very local, Solway district, "abundant in *Dædalea quercina*, growing on oak-stumps near Eccles" (Sharp).

The most local species of the genus *Gyrophæna* are often exceedingly abundant where they occur, and the contents of one or two boleti are often enough to supply most of our collections.

AGARICOCHARA, Kraatz.

This genus is exceedingly closely allied to *Gyrophæna*, and was separated from it by Kraatz chiefly on the ground that the ligula is bifid, whereas in *Gyrophæna* it is entire; there is also a slight difference in the shape of the mesosternum, and the intermediate coxæ are less perceptibly distant, and the elytra are distinctly longer in proportion; the genus contains two European species.

A. lævicollis, Kr. Ferruginous-red, with the head, postero-external angles of elytra, and the hind body (except the apex of the segments) brownish or pitchy; head less transverse, and with eyes less prominent

than in any of the *Gyrophæne* except *G. strictula*, impunctate; antennæ rather long; thorax very short, much narrower than elytra, almost impunctate, but, together with head, finely shagreened; elytra much longer and broader than thorax, finely and sparingly, but distinctly, punctured; hind body almost smooth, or obsoletely shagreened; legs testaceous. L. 1 mm.

The sexual differences do not appear to be important.

In boleti growing on old stumps and trees; local; London district, rather common; Hampshire; Yardley and Knowle, near Birmingham; Buddon Wood, Leicestershire; Repton; Sherwood Forest; Scarborough; Manchester district; Northumberland district, rare, North Seaton and Ravensworth; not recorded from Scotland.

PLACUSA, Erichson.

This genus contains between twenty and thirty species, the majority of which are found in Europe: it is probable that the genus has a very wide distribution, as, although two or three species only besides the European species have hitherto been known (from Ceylon, Australia, &c.), Dr. Sharp has lately described no less than nine new species from Central America; the species are small and obscure, and live under the bark of dead trees and logs: they are also found at sap; the male characters are peculiar, and in many cases afford helps to identification, but otherwise the species are very hard to distinguish; the synonymy is in consequence very confused, and it seems hardly settled how many species we really possess as British.

The larva of *Placusa pumilio* is described by Perris, Ann. Fr. 1853, p. 565, pl. 17, fig. 20-25; it is about 3 mm. in length, entirely yellowish-white, with the head and three last segments of abdomen spotted with reddish markings; the general shape calls for no particular observation; the 8th segment of the abdomen is quadrate, narrower than the 7th, and the 9th is much narrower than the 8th and bears a short anal appendage and two short cerci, the 2nd joint of which is a little longer than the 1st.

This larva, like that of *Phlæopora reptans*, appears to prey on the pupæ of *Tomicus* and probably on their larvæ; it transforms itself into a soft white pupa in the middle of the detritus with which they fill their galleries.

- I. Thorax at base fully as broad as elytra; upper surface duller.
 - i. Size smaller; antennæ with joints 5-10 strongly transverse, about equal in length P. PUMILIO, Grav.
 - ii. Size larger; penultimate joints of antennæ a little more strongly transverse than the preceding P. COMPLANATA, Er.
- II. Thorax at base slightly but distinctly narrower than elytra; upper surface more shining.
 - i. Size smaller; spines on each side of 7th segment of male short P. INFIMA, Er.
 - ii. Size larger; spines on each side of 7th segment of male long P. DENTICULATA, Sharp.

P. pumilio, Grav. Of a dull black colour with the elytra and apex

of hind body brownish, very finely punctured and pubescent; antennæ reddish brown with the base testaceous, with joints 5–10 strongly transverse; thorax broader than long, fully as broad at base as elytra, with base sinuate near posterior angles; elytra longer than thorax, depressed; hind body closely punctured, posterior segments a little smoother and more shining, with punctuation not so close; legs testaceous, posterior femora sometimes darker. L. 2 mm.

Male with the seventh segment of hind body furnished with a tubercle on disc, and three tubercles or blunt teeth at apex, of which the central one is most conspicuous, and the lateral ones appear to be sometimes absent; on each side the segment is terminated by a long slender spine, slightly curving inwards: the male characters, however, of this species appear to vary somewhat, and on these variations have been founded other species.

Under bark, and also at fresh sap of various trees, beech, fir, oak, &c.; not uncommon; Richmond Park, Ashted, Mickleham, Caterham, Tilgate Forest, Highgate, Lee, Tonbridge; Cannock Chase; Bewdley Forest; Sherwood Forest; Scotland, under bark of dead trees, Tweed, Forth, Tay, and Dee districts.

***P. complanata*, Er.** Larger than the preceding, and distinguished by having the intermediate joints of the antennæ not strongly transverse, and longer in proportion to the following joints; the general colour is duller, and the elytra as a rule darker; the posterior angles of the thorax are a little more blunt; the male characters appear to differ very little from some forms of *P. pumilio*, three tubercles, however, being always present on the apex of hind margin. L. $2\frac{1}{2}$ mm.

This species was introduced as British by Crotch many years ago, but was afterwards dropped: there are, however, specimens from Braemar, Rannoch, and Paisley in Mr. Rye's collection, and others that appear to belong to it.

***P. infima*, Er.** More shining than either of the two preceding, pitchy black with the elytra brownish; antennæ ferruginous or fuscous with base lighter, with joints 5–10 transverse, more strongly so in the female than in the male; thorax much broader than long, a little narrower than elytra, very finely and thickly punctured, sinuate on each side near posterior angles, which are right angles; elytra widened behind, longer and less closely punctured than thorax; hind body finely and closely punctured throughout; legs clear testaceous. L. 2 mm.

Male with the seventh segment of hind body terminated on each side by a slender spine, the apex between these furnished with four short even tuberculiform teeth; and the disc of the segment having on its upper surface two small tubercles, placed transversely.

Under bark; rare; Shirley, Weybridge, West Wickham, Addington (*Cossus* trees); Repton, near Burton-on-Trent; Chat Moss; Northumberland district, rare, Gosforth.

***P. denticulata*, Sharp.** This species appears to be considered a variety of the preceding by some authorities, but it is less depressed than

the other species, and much larger than its nearest ally *P. pumilio*, which it resembles in form and punctuation of hind body, &c.; it is also, as a rule, more brightly coloured; it is, however, chiefly distinguished by the characters of the male, in which sex the seventh segment of hind body has two tubercles before apex, which is armed as in the preceding species with two lateral incurved spines; between these, however, there are three rather long tubercles, the external pair of which are strongly bifid, and appear divided almost to their base. L. $2\frac{2}{3}$ –3 mm.

At the overflowing sap of various trees, especially beech, birch, and fir; rare; Mickleham, Ashted, Ripley (Surrey), Woking, Bishops Wood; Sherwood Forest; Scotland, Tay, Dee, and Moray districts.

EPIPEDA, Mulsant et Rey.

This genus was formed to include the single species *H. plana*; as this appears to have been the original type *Homalota*, Thomson applies the generic name to this species alone: this plan of limiting the names of large genera to the old types which appear to belong to genera distinct from the mass of species is giving rise at present to the greatest confusion of nomenclature, and is much to be deprecated; the genus *Epipeda* is distinguished from *Homalota* by its four-jointed intermediate tarsi; the labial palpi are two-jointed, and the insect comes properly in the neighbourhood of *Silusa*; there has been some question as to the number of the joints of the intermediate tarsi, but Dr. Sharp appears to have proved that they are only four in number; fourteen species have lately been described by the latter writer from Central America, and it is probable that many more will be found in the New World; they occur under bark.

E. plana, Gyll. Depressed, black or pitchy with the elytra fuscous, the fore parts very dull, and the hind body shining; head large, nearly as broad as thorax, distinctly and closely punctured, eyes prominent, antennæ rather short and stout, pitchy, with base lighter, first joint as long as second and third together, fifth much broader than fourth, 5–10 transverse, eleventh short; thorax a little narrower than elytra, closely punctured, with an indistinct central channel; elytra plainly longer than thorax, very finely punctured; hind body with extremity sometimes pale, with basal segments finely and not thickly punctured, fourth segment more sparingly punctured, fifth and sixth almost impunctate; legs testaceous, femora pitchy. L. 3 mm.

Male with the sixth segment of hind body furnished on the upper side before margin with a small raised tubercle, seventh segment with two raised longitudinal lines which project beyond the margin in the form of two small indistinct teeth.

Under bark of dead elm and other trees; local; London district, rather common; Glanvilles Wootton, Dorset; Barnstaple, Devonshire; Repton, Burton-on-Trent; Bewdley and Sherwood Forests; Sutton Park; Edgbaston; Liverpool; not recorded from the extreme north of England or from Scotland.

SILUSA, Erichson.

Dr. Sharp has lately described eight new species of this genus from Central America, but until recently it has only contained ten species, one or two of these occurring in Europe, and the rest being very widely distributed, occurring in North America, Chili, Ceylon, New Guinea, and Australia; they are found under bark, at sap, &c.

S. rubiginosa, Er. (*rufula*, Mots.). Rather shiny, pitch-black, with the elytra and apex of hind body reddish brown, the region round scutellum and posterior angles being sometimes darker; head much narrower than thorax, antennæ as long as head and thorax together, gradually thickened towards apex, ferruginous with base lighter, penultimate joints gradually more strongly transverse, last joint rather longer than the two preceding together; thorax broader than long, as broad at base as elytra, with sides plainly and regularly rounded, finely and thickly punctured; elytra longer and more strongly punctured than thorax; hind body parallel-sided, closely punctured at base, more sparingly behind. L. $3-3\frac{1}{2}$ mm.

Male with the suture of elytra raised at apex; sixth segment of hind body furnished with a longitudinal keel, seventh nearly hidden, finely and obsoletely crenulate on apical margin.

At sap, especially of Cossus-infected trees, also under bark; local; London district, not rare; Dulwich, Putney, Mickleham, Tooting, Hanwell (bark of elm trees), Cowley; Tonbridge; Wraxall, Norfolk; Winchester; Cambridge; Dean Forest; Ockbrook, near Derby: it has not occurred in any locality in the north of England or in Scotland.

ACTOCHARIS, Janson.

The very anomalous insect that forms this genus is very rare, and its position is very doubtful: the bifid ligula and swollen third and subulate apical joint of its maxillary palpi are very peculiar characters, the latter connecting it with *Eudectus* and *Coryphium*, with which, however, it has little in common, although in the catalogue of Heyden, Reitter, and Weise it is located not so very far from them between *Ancyrophorus* and *Compsochilus*; in the elongate lobes of its maxillæ it clearly approaches *Myllæna*, and in its palpi *Gyrophæna*; on the whole the position near *Silusa*, with which it has several points in common as regards the structure of the mouth organs, seems as good as any that can be adopted

A. Readingii, Sharp (*marina*, Fauvel). Elongate, linear, depressed, very narrow; reddish testaceous, with hind body except apex fuscous; head elongate, with eyes small, not prominent, and unicolorous with head, antennæ testaceous, moderately long and stout, with joints 3-10 somewhat transverse, the third joint smaller than the others; thorax not transverse, narrowed towards base; elytra shorter than thorax; hind

body somewhat widened behind ; legs short and rather stout, testaceous, tarsi short. L. $1\frac{1}{2}$ mm.

Male with the sixth segment of hind body elongate, broadly impressed longitudinally, and with the apex emarginate in a semicircle.

Under sea-weed, &c., usually below high-water mark ; very rare ; Plymouth (Reading and Wollaston) ; it has also been taken quite recently (March, 1886) by Mr. J. J. Walker at Falmouth "on the undersides of large stones sunk in the sand in places where a little trickle of fresh water came down from the cliffs above."

EURYUSA, Erichson.

This genus contains four European species, and a few from Chili, North America, &c. ; they are usually associated with ants.

E. laticollis, Heer (*linearis*, Maerk.). Of a rather dull ferruginous or pitchy-red colour, with the head and base of elytra darker, and a broad pitchy black ring before apex of hind body which is testaceous ; head much narrower than thorax, antennæ reddish with the last joint and the basal joints lighter, third joint a little longer than second, 4-10 gradually thicker, the penultimate ones very strongly transverse, last joint plainly as long as the two preceding together ; thorax much broader than long, narrowed in front, broader at base than elytra, but with the posterior angles obtuse and not produced as in *Homæusa* and *Dinarda*, finely, thickly, and somewhat rugosely punctured ; elytra a little longer than thorax, finely and rather roughly punctured ; hind body long, narrowed towards apex, finely and thickly punctured in front, less finely and a little more strongly behind ; legs reddish-testaceous. L. 3 mm.

Male with the sixth segment of hind body furnished with a small raised keel, seventh sinuate in middle of apical margin.

In rotten wood ; rare ; Loughton (Essex) ; Highgate ; Shirley, near Croydon (taken by Dr. Power running at the bottom of a beech tree infested by *Cossus*) : according to Mulsant and Rey it is found in the frass of old trees in company with *Formica fuliginosa* and *fusca*.

LEPTUSA, Kraatz.

In its widest sense this genus is made up of several sub-genera, and contains upwards of one hundred species, which are chiefly found in Europe and the Mediterranean region ; they bear a strong outward resemblance to certain species of *Homalota* ; many are found under bark.

The larva of *Leptusa fumida* is described by Fauvel, Ann. Fr. 1862, p. 87, and that of *L. analis* by Perris, Ann. Fr. 1853, p. 563 : they appear to be closely allied to the larvæ of *Phlæopora*, and are found under much the same conditions ; the larva of *L. fumida* appears to have the eighth abdominal segment prolonged over the ninth as in *P. corticalis*, whereas in *L. analis* it is obliquely truncate and not prolonged ; in the latter larva the anal appendage is long and very narrow, and the cerci exceed it in length ; in the former the cerci are very short, and there is no trace of an anal appendage ; the colour appears to be whitish with the head and apical segments of abdomen reddish.

The larva of *L. fumida* is said to be found in the galleries of *Cerylon*, and that of *L. analis* in the galleries of *Tomicus*, but it is probable that neither of them are confined to any particular insect.

According to our catalogues there are four British species of this genus; but two of these, *L. testacea* and *L. ruficollis*, belong respectively to the sub-genera *Sipalia*, Rey, and *Pachygluta*, Thoms.: many of the continental authorities unite these as sub-genera under *Leptusa*, but they seem to be very distinct from that genus; the differences, however, between *L. testacea* and *L. ruficollis* are very slight, consisting chiefly in the relative sharpness of the mesosternal plate. The difference as expressed by Mulsant and Rey is as follows: *Sipalia*, "Lame mésosternale rétrécie en angle aigu;" *Pachygluta*, "Lame mésosternale rétrécie en pointe acérée," and I have therefore united them under *Sipalia*. The genus *Leptusa*, as thus restricted, contains only four or five European species.

- I. Thorax hardly narrower than elytra; colour brown or pitchy,
rather dull; antennæ ferruginous or reddish testaceous *L. ANALIS*, Gyll.
II. Thorax plainly a little narrower than elytra; colour pitch-black,
shiny; antennæ pitchy with base lighter *L. FUMIDA*, Er.

L. analis, Gyll. Of an obscure pitchy-red or brownish-red colour, with the head and part of hind body before apex darker, finely and rather thickly pubescent; head much narrower than thorax, antennæ moderately stout, slightly thickened, ferruginous or reddish-testaceous, with penultimate joints strongly transverse; thorax plainly broader than long, about as broad as elytra, finely and thickly punctured; elytra longer than thorax, thickly and rugosely punctured, the punctuation being evidently stronger than that of thorax; hind body long, parallel-sided until near apex, finely and thickly punctured in front, sparingly behind, basal segments strongly impressed longitudinally; legs clear reddish-testaceous. L. $2\frac{2}{3}$ mm.

Male with the sixth segment of hind body furnished with a long longitudinal keel, seventh with a more or less distinct keel, apical margin plainly sinuate.

Local; Scotland, Highlands, under bark of fir; Tay, Dee, Moray, and Solway districts: Mr. W. G. Blatch tells me he has taken it in the Dean Forest, which is hitherto the only English record.

L. fumida, Er. (*hæmorrhoidalis*, Heer). Blacker and more shining than the preceding, with lighter and less close pubescence; it is, moreover, a shorter and stouter insect; the antennæ are a little longer in proportion, and are fuscous with base lighter; the thorax is evidently narrower than the elytra, and the hind body is less elongate; the male characters also are different, the sixth segment being furnished with a small tubercle instead of a long keel, and the seventh being less strongly sinuate and sometimes obsoletely crenulate at apex. L. $2\frac{1}{4}$ – $2\frac{1}{2}$ mm.

Under bark, &c.; common and widely distributed throughout the country.

This species has much the general appearance of an *Ocyusa*, but apart from other things its habitat is quite different.

SIPALIA, Rey.

This sub-genus contains a large number of species that have until recently been included under *Leptusa*; as above stated, *Pachygluta*, which only appears to differ slightly from *Sipalia*, is here included under it as a sub-genus; *Sipalia* is distinguished from *Leptusa* by having the intermediate coxæ contiguous, by the absence of wings, and also by having the hind body more or less widened behind; the elytra also, as a rule, are shorter, and the mesosternal plate is prolonged in a sharper point.

- I. Eyes small; mesosternal plate prolonged in a very sharp point (sub-gen. *Pachygluta*, Thoms.); head and elytra black, thorax bright reddish testaceous *S. RUFICOLLIS*, Er.
- II. Eyes very small; mesosternal plate produced in a less sharp point (*Sipalia* i. sp.); colour chiefly testaceous, with the head and hind body, except base and apex, darker *S. TESTACEA*, Bris.

S. ruficollis, Er. (*Pachygluta ruficollis*, Thoms.). Elongate and narrow, with the head, elytra, and more or less of hind body before apex black, thorax clear red, and base and apex of hind body more or less broadly reddish or testaceous; head almost as broad as thorax, antennæ moderately stout, pitchy, with the two or three first joints and the last joint testaceous, penultimate joints strongly transverse; thorax nearly as broad as elytra, finely punctured; elytra at suture shorter than, or about as long as, thorax, rather strongly and rugosely punctured; hind body widened behind, finely punctured in front, almost smooth behind; legs reddish testaceous. L. 2 mm.

Male with a raised prominence on each elytron near suture; sixth segment of hind body furnished with a small tubercle near apex, seventh segment emarginate.

Under bark, and in dry moss on old trees; not uncommon; London district, general; Glanvilles Wootton, Dorset; New Forest; Malvern; Midland districts, Repton, &c., common; Lincoln; Northumberland district; Scotland, local, Lowlands and Highlands, Tweed, Solway, Forth, and Tay districts.

This insect is the type species of Thomson's genus *Pachygluta*, the characters of which are that the hind body is widened at apex, and the elytra are not longer than thorax (Skand. Col. i. 32).

S. testacea, Bris. (*Sipalia testacea*, Muls. et Rey.). Testaceous, with the head sometimes darker, and the hind body more or less broadly pitchy except at base and apex; head large, as broad as thorax, narrowed in front of eyes, sparingly punctured; antennæ as long as head and thorax together, brownish with base testaceous, slightly thickened,

and somewhat moniliform, with penultimate joints rather strongly transverse; thorax almost as long as broad, narrowed to base where it is rather narrower than elytra, finely and thickly punctured; elytra evidently shorter than thorax, finely and thickly punctured, but with the sculpture more evident than that of thorax; hind body slightly rounded at sides and a very little narrowed at base, sparingly punctured in front and almost smooth behind; legs testaceous. L. $2-2\frac{1}{4}$ mm.

Under refuse on the sea-shore: a single specimen was taken by Mr. Champion at Whitstable on June 6th, 1870, which remained unique as British, until Mr. Blatch found it in numbers two or three years ago at Weymouth; it has also occurred at Ventnor.

Although our single species of *Sipalia* proper is a coast species, and appears to be very different in habitat from *S. ruficollis*, yet the majority of the species of *Sipalia* appear to be found under stones and in moss in woods and forests, and not therefore to differ much in habitat from *Pachygluta*.

BOLITOCCHARA, Mannerheim.

This genus comprises a moderate number of species, of which about half are found in Europe, and others occur in Ceylon, Chili, &c.; they inhabit fungi, rotten wood, faggots, &c.; many of them are rather brightly coloured and conspicuous insects; we possess four as British out of the fourteen or fifteen European species; these may be distinguished as follows:—

- I. Last joint of the antennæ paler than the preceding; male with the sixth segment of hind body furnished with a longitudinal keel; prevailing colour testaceous.
 - i. Thorax much narrower at base than elytra; antennæ long.
 1. Size larger; antennæ with joints 6–8 hardly transverse; elytra more coarsely punctured B. LUCIDA, Grav.
 2. Size smaller; antennæ with joints 6–8 evidently transverse; elytra less coarsely punctured B. LUNULATA, Payk.
 - ii. Thorax only a little narrower than elytra; antennæ short B. BELLA, Maerk.
- II. Last joint of the antennæ as dark as the preceding; male with sixth segment of hind body not keeled, but with its upper surface granulate; prevailing colour pitchy B. OBLIQUA, Er.

B. lucida, Grav. (*elegans*, Fairm.). Of a reddish testaceous colour, with the region round scutellum, and a more or less broad oblique band or patch near postero-external angles of elytra, and also a band before apex of hind body, black; the head and thorax are sometimes of a darker reddish colour; head transverse, contracted before and behind eyes, about as broad as thorax, antennæ long, dark, with the base and apical joint testaceous, penultimate joints transverse; thorax not much broader than long, narrowed in front, much narrower at base than elytra, rather strongly and thickly punctured; elytra a little longer than thorax with

surface evidently uneven, very coarsely and thickly punctured, the punctures running one into the other; hind body with sides slightly rounded, and plainly narrowed at apex, rather strongly and not closely punctured, the punctuation becoming finer towards apex, basal segments strongly impressed longitudinally; legs long, testaceous. L. $4\frac{1}{2}$ mm.

Male with a longitudinal raised fold at apex of each elytron near suture; sixth segment furnished with a longitudinal keel, seventh with dorsal plate more or less plainly crenulate on apical margin, ventral plate much produced.

In fungi and rotten wood of fungus-grown trees; local; Darenth Wood, Reigate, Caterham, Strood, West Wickham; Sandwich (in abundance, Rev. H. S. Gorham); New Forest; Nettlecomb, Somerset; Gumley, Market Harborough; Riseholme, near Lincoln; Scarborough; Scotland, very rare, "Glasgow, R. Hislop."

B. lunulata, Payk. (*elongata*, Heer?, *flavicollis*, Muls. et Rey). Very like the preceding, but rather smaller and narrower; the antennæ are a little shorter, and have joints 5–10 more strongly transverse; the elytra are longer in proportion to the thorax, less uneven on disc, and less strongly and rugosely punctured; the colour also is, as a rule, lighter and more bright; the male characters are much as in the preceding, from which species it is certainly, in some cases, difficult to distinguish it. L. $3\frac{1}{2}$ –4 mm.

In fungi, especially on fir trees; rare; Cobham (Kent); Llangollen; Scotland, rare, Lowlands, Tweed and Clyde districts (Paisley, &c.).

B. bella, Maerk. (*lunulata*, Muls. et Rey, *nec* Payk.). In colour much resembling the two preceding, but at once distinguished by its smaller size, more parallel form, and shorter antennæ, of which the fifth and sixth joints are shorter, and more strongly transverse; the thorax is only a little narrower at base than the elytra, and is much less contracted in front than in either of the two preceding species; the elytra also are less strongly and rugosely punctured; the colour is perhaps, as a rule, a little duller; the male has the fold near suture of elytra, and the longitudinal keel on the sixth segment of hind body as in these other species. L. 3 mm.

In rotten wood, fungi, faggot stacks, &c.; occasionally taken by sweeping; local, but sometimes in great abundance. London district, generally distributed; Glanvilles Wootton; New Forest; Southampton; Somerset; Midland district, not uncommon; North Wales; not recorded from the north of England or Scotland.

B. obliqua, Er. Pitch-black with the elytra, except the region round scutellum, and the postero-exterior angles, pitchy red; sometimes the elytra are almost entirely pitch-black, and sometimes the thorax, the chief part of the elytra, and the apex of the basal segments of hind body are more or less reddish; head as broad as thorax, antennæ thickened towards apex, pitchy, with base testaceous, with fifth joint transverse, and joints 6–10 very strongly transverse; thorax much narrower than elytra, with a strong impression at base which is sometimes divided into

two, finely and thickly punctured; elytra longer than thorax and much more strongly punctured, the punctuation being coarse and rugose; hind body finely and not thickly punctured, basal segments longitudinally impressed; legs reddish testaceous. L. $3\frac{1}{2}$ mm.

Male with the sixth segment of hind body rather strongly granulated on its upper surface, seventh broadly emarginate and obsoletely crenulate on its apical margin.

In fungi, especially on fir trees; local, but not uncommon; Dulwich, Kingsgate, &c.; Bognor (very common); Llangollen; Chat Moss; Leicestershire; Manchester; Liverpool; Hartlepool; Northumberland district; Scotland, common Lowlands and Highlands, in fungus under bark, Tweed, Forth, Tay, Solway, and Clyde districts.

PHYTOSUS, Curtis.

This genus contains three or four European species, which are found under refuse, &c., on the sea-shore, usually below high-water mark; Mulsant and Rey divide them into two genera on certain characters of the metasternum and the greater or less length of the elytra: it seems a matter of much uncertainty whether we have both species of the subgenus *Actosus* in Britain; they are, however, so closely connected, that it seems rather doubtful whether they are really separate species.

The larva of *Phytosus nigriventris* is described by Fauvel, Ann. Fr. 1862, p. 84, pl. 2, fig. 14: it is 2 mm. in length, a little widened behind, rather convex, of a whitish colour with the head slightly reddish; in general shape it resembles very much the perfect insect; the head is large and broad, and the antennæ very short; the prothorax is larger and broader than the meso- and meta-thorax; the abdominal segments are very transverse, almost rectangular, the first being the narrowest part of the body, so that the insect appears strangulate in the middle; the ninth segment is much narrower than the eighth, and apparently bears no anal appendage or cerci; the legs are rather long and stout.

This larva is found under stones in damp places near sand-hills, and appears to feed on Poduridæ.

Upper surface dull black; elytra longer than thorax *P. SPINIFER*, Curt.

Upper surface chiefly reddish testaceous; elytra very short,

much shorter than thorax *P. BALTICUS*, Kr.

P. spinifer, Curt. (*semilunaris*, Rey). Depressed, linear, and parallel, finely pubescent, dull black, with the elytra more or less broadly reddish towards apex; head about as broad as thorax, antennæ short, somewhat moniliform, with joints 4-10 gradually thicker, strongly transverse; thorax as long as broad, narrowed towards base where it is narrower than elytra, very obsoletely, thickly, and finely punctured, and usually broadly impressed longitudinally; elytra longer than thorax, finely punctured; hind body a little narrowed at base and slightly widened behind, much more shining than the front parts with the apex often reddish or yellowish, finely punctured, a little more finely on sixth segment, segments 2-5 plainly impressed longitudinally; legs testaceous, with femora dusky. L. $2\frac{1}{4}$ mm.

Male with the sixth segment of hind body sinuate on its apical margin.

Under rubbish on the sea-shore below high-water mark, also among shingle; I have also taken it flying in the hot sun and settling on large pebbles and rocks; not common, but sometimes occurs locally in some numbers; Margate, Broadstairs, Bognor; Weymouth; Swanage; Hayling Island; Ventnor and Ryde, Isle of Wight; Southsea; Mablethorpe, Lincolnshire; Hartlepool; Northumberland district, not rare (Bold); Scotland, rare, Tweed district only; Ireland, co. Down and near Dublin.

P. balticus, Kr. (*Actosus balticus*, Muls. et Rey, *nigriventris*, Chevr.?). Narrow and linear, finely pubescent, reddish testaceous, with the head sometimes darker, and the hind body between base and apex more or less broadly black; head about as broad as thorax, antennæ short, with joints 4–10 strongly transverse, entirely testaceous; thorax as long as broad, narrowed behind where it is a little narrower than elytra, thickly and obsoletely punctured; elytra very short, only about half as long as thorax, finely and thickly punctured; hind body finely but plainly punctured, parallel-sided or slightly widest behind; legs testaceous. L. 2 mm.

Male with the ventral plate of seventh segment of hind body produced in a blunt angle beyond the dorsal plate.

Under refuse, &c., on the sea-shore usually below high-water mark; rare, but sometimes occurs in numbers; Kingsgate; Weymouth; Hastings; Isle of Wight; Southsea; Whitsand Bay, near Plymouth; Mablethorpe, Lincolnshire (in abundance under dry dung on the beach); Liverpool, Crosby (abundant); Southport; Hartlepool; Northumberland district (beneath tufts of sea-rocket (Bold)); Scotland, rare, under sea-weed in sandy places, Forth and Clyde districts.

P. nigriventris is said to differ from *P. balticus* in having the fourth, fifth, and sixth segments of hind body (instead of only the fourth and fifth) black, the hind body as a whole being enlarged behind, and very finely and obsoletely punctured: I have, however, specimens from Mablethorpe, Lincolnshire, in which the hind body is much widened behind, and the punctuation is very distinct; the colour of the segments of hind body appears to be very variable even in specimens from the same locality, and, moreover, different writers seem to give different accounts of the distinctions between the two species (cf. Fauvel, Ann. Fr. 1862, p. 86, and Mulsant and Rey, Brévipennes, 1871, p. 304–307): it seems, therefore, very probable that the species are really identical.

In strict accordance with the tarsal system the genus *Myllæna* ought to be inserted here, but it is placed as being anomalous with *Gymnusa* and *Deinopsis* at the end of the Aleocharinæ.

OLIGOTINA.

This tribe contains three British genera, which are distinguished by having all the tarsi four-jointed; they differ from each other in several important particulars, and can only be grouped together by the character of the tarsal joints; the genus *Oligota* contains a number of very minute species, which are among the smallest known Staphylinidæ; *Hygronoma*

externally much resembles some species of *Homalota*; the other genus, *Diglossa*, is very distinct by reason of its exceedingly long maxillary palpi.

I. Antennæ 11-jointed.

- i. Labial palpi long and slender, 2-jointed; maxillary palpi with the second and third joints elongate *DIGLOSSA, Hal.*
- ii. Labial palpi short, 3-jointed; maxillary palpi with second and third joints not elongate *HYGRONOMA, Er.*

II. Antennæ 10-jointed *OLIGOTA, Mannh.*

DIGLOSSA, Haliday.

The species belonging to this genus are characterized by their very long four-jointed maxillary palpi, by having the thorax very strongly contracted behind, by the anterior tibiæ terminating in a produced spine externally, and by the slender and abruptly reflexed claws; they are very few in number, and occur among shingle, &c., below high-water mark.

- 1. Elytra plainly shorter than thorax; insect apterous . . . *D. MERSA, Hal.*
- 2. Elytra as long as thorax; insect winged *D. SUBMARINA, Fairm.*

D. mersa, Hal. Linear, entirely black, front parts dull, hind body shining; head large, as broad as thorax, antennæ rather short, somewhat moniliform, pitchy-red, or pitchy with base lighter, third joint much shorter than second, penultimate joints plainly transverse; thorax in front as broad as long, truncate at apex, and strongly narrowed to base, where it is plainly narrower than elytra, very finely and thickly punctured; elytra evidently shorter than thorax, finely and thickly punctured; hind body feebly widened behind, sparingly punctured; legs pitchy red with femora usually darker. L. $1\frac{1}{2}$ –2 mm.

Under shingle, and on sand below high-water mark; I have also found it on the wing settling on large pebbles, &c., in the sun, like *Phytosus spinifer*; local, and usually considered rare; Southend; Sheppy; Weymouth; Hunstanton; Cleethorpes, Lincolnshire; Tenby, South Wales (in numbers); Ventnor, Isle of Wight (in numbers, trapped in small pools on the rocks on a sunny day in April); Scotland, very local, Forth and Clyde districts; Ireland, Baldoyle.

D. submarina, Fairm. (*sinuatocollis*, Rey). Distinguished from the preceding by having the elytra as long as thorax, and by the hind body being strongly enlarged behind, and more closely punctured; the thorax also is more constricted at base, and the insect is furnished with wings. L. $1\frac{1}{2}$ –2 mm.

Has apparently occurred in Ireland, having been sent by Mr. Haliday to M. Javet. (*Vide Ent. Mo. Mag.* xx. 168.)

HYGRONOMA, Erichson.

The single European species contained in this genus strongly resembles

in form certain species of *Homalota*, from which genus it is distinguished by the number of the joints of the tarsi; it is found in fens and marshy localities.

H. dimidiata, Grav. Elongate, linear, parallel-sided, depressed, dull black, with at least half the elytra testaceous yellow, the colour being very sharply defined; head very large, somewhat diamond-shaped, almost broader than thorax, antennæ moderately long, pitchy, with base testaceous, joints 5–10 somewhat transverse; thorax fully as long as broad, a little narrower at base than elytra, with a more or less obsolete central channel, very finely and thickly punctured; elytra scarcely longer than thorax, with the punctuation slightly finer than that of thorax; hind body almost parallel-sided, finely and thickly punctured throughout, with segments 2–5 plainly impressed longitudinally at base; legs reddish testaceous. L. $2\frac{1}{2}$ – $2\frac{3}{4}$ mm.

Male with the dorsal plate of seventh segment of hind body truncate, ventral plate produced; forehead broadly impressed, and thorax broadly channelled; female with forehead even, and the thorax finely channelled.

In stems of reeds, &c., and at roots of grass in marshy places; local, but not uncommon; Northfleet, Strood, and Lee (Kent); Walton-on-Thames; Battersea Fields; Dagenham; Birchington, Ramsgate; Hastings; Cambridgeshire and Norfolk fens; Midland district, Sutton Park, Knowle, Coleshill, Repton, &c.; Askham Bog, York; not recorded from the extreme north of England; Scotland, very rare, in marshes, Tweed district, "Lurgie Loch," R. Hislop.

OLIGOTA, Mannerheim.

This genus contains about forty species of very minute insects, the smallest members, perhaps, of the whole family; they are very widely distributed, being found in Europe, North, Central, and South America, Ceylon, Egypt, the Canary Islands, &c.; they occur in vegetable refuse of various kinds, and occasionally in ants' nests; the genus is here regarded in its widest sense as including *Microcera*, Er. (*Somatium*, Woll.), and the sub-genera of Mulsant and Rey: the species are exceedingly hard to determine; the distinctions rest principally on the number of joints contained in the club of the antennæ, but, as in the exotic genus *Languria*, it is often very difficult to decide with accuracy whether the club is three- or four-jointed, especially if the antennæ are at all gummed or not looked at from a right point of view; the following table must not therefore be depended upon apart from the comparative descriptions.

- | | |
|--|--------------------------|
| I. Hind body oblong, parallel-sided or nearly so; club of antennæ, 4- or 3-jointed; form narrower. | |
| i. Club of antennæ not abrupt, 4-jointed | O. INFLATA, <i>Mann.</i> |
| ii. Club of antennæ somewhat abrupt, 3-jointed. | |
| 1. Sixth segment of hind body much longer than preceding | O. PARVA, <i>Kr.</i> |
| 2. Sixth segment of hind body scarcely longer than preceding. | |

- A. Form narrower and more linear; elytra shorter in proportion to thorax *O. PUSILLIMA, Grav.*
- B. Form broader; elytra longer in proportion to thorax.
 - a. Size smaller; antennæ pitchy red with apex darker *O. ATOMARIA, Er.*
 - b. Size larger; antennæ entirely red *O. PUNCTULATA, Heer (ruficornis, Sharp).*
- II. Hind body broad, moderately contracted at apex; club of antennæ 4-jointed; form broader *O. GRANARIA, Er.*
- III. Hind body short, very strongly narrowed to apex.
 - i. Club of antennæ abrupt, 3-jointed; apex of hind body black *O. FLAVICORNIS, Lac.*
 - ii. Club of antennæ gradual, 5-jointed; apex of hind body broadly yellow *O. APICATA, Er.*

***O. inflata*, Mann.** Black, rather shining, with the elytra more or less distinctly reddish brown, and the apex of hind body reddish testaceous; head plainly narrower than thorax, antennæ nearly as long as head and thorax together, testaceous with apex fuscous, third joint shorter and narrower than second, eighth to eleventh joints forming a gradual club; thorax nearly twice as broad as long, about as broad at base as elytra, finely and thickly punctured; elytra evidently longer and less closely punctured than thorax; hind body parallel-sided very thickly and uniformly punctured, with the sixth segment evidently longer than the fifth; legs testaceous. L. 1 mm.

In haystack refuse, &c.; not uncommon; Birch Wood, Darent Wood, Sheerness, Croydon, Shirley, Tonbridge; Glanvilles Wotton (abundant under fir trees); Hastings; Exeter; Birmingham district; Repton; Scarborough; Manchester; North-umberland district; Scotland, rare, Solway and Tweed districts only; Ireland, Dublin, and near Waterford.

***O. parva*, Kr. (*pygmæa*, Kr. olim).** Distinguished from the preceding by its smaller size and narrower form, and the three-jointed club of the antennæ; from *O. pusillima* it may be separated by its reddish brown elytra, and the bright yellow terminal segments of the hind body; it is smaller than *O. atomaria*, and differs from it, among other things, in having the legs entirely pale; the sixth segment of hind body is more developed than in any of the following species in this section. L. $\frac{3}{4}$ mm.

In cut grass, haystack refuse, &c., rare; Shirley, near Croydon; Edinburgh (?).

***O. pusillima*, Grav.** This species may be separated from all its allies by its narrow and somewhat linear form, and by having the elytra shorter in comparison with the thorax; it is about the size of *O. parva*, but has the sixth segment of hind body shorter than in that species; the apex of hind body is obscure or brownish instead of bright yellow, and the punctuation of the upper surface is rather less fine; the colour is variable, being either pitchy black with the apex of hind body reddish, or with the elytra chestnut brown, or entirely reddish with the head and part of hind body pitchy. L. $\frac{3}{4}$ mm.

In haystack refuse, decaying sea-weed, &c. ; common and widely distributed in the London and Southern districts, and the Midlands ; rarer further north ; Scotland, rare, Tweed and Forth districts ; it occasionally occurs with *Formica fuliginosa*, with which Dr. Power has taken it at Birdbrook, Essex.

O. atomaria, Er. This species is rather larger and broader than either of the two preceding ones ; the usual colour is entirely pitch-black, with the antennæ and legs pitchy-brown, and the apex of hind body obscurely lighter, but it is somewhat variable in this respect, although the legs and antennæ are always darker than in *O. ruficornis*, and the club is evidently narrower than in that species ; from *O. pusillima*, besides being larger, it may be distinguished by having the thorax more transverse, the elytra longer and broader, and the hind body slightly narrowed towards apex, and from *O. parva* by having the apex of hind body much less broadly and more obscurely lighter, and the sixth segment of hind body less developed. L. vix 1 mm.

In debris of fern, vegetable refuse, &c. ; local ; Colney Hatch, Charlton, Mickleham, Lewisham, Dulwich, Tonbridge ; Deal ; Littlington, Sussex ; Weymouth ; Glanvilles Wootton ; Wicken and Horning Fens ; Bewdley ; Tewkesbury ; Northumberland district, only recorded from "Hetton Hall, near Belford (W. B. Boyd) ;" not recorded from any other district north of the Midlands ; it appears sometimes to occur with *F. fuliginosa*.

O. punctulata, Heer (*ruficornis*, Sharp, *pilosa*, Rey). Black, with the elytra usually reddish brown, and the apex of hind body reddish ; antennæ and legs entirely rufo-testaceous, the former with a rather abrupt three-jointed club, which distinguishes it from *O. inflata* ; by the structure of the antennæ, and the colour of these and the legs, it is closely allied to *O. pusillima*, but it is larger, and especially broader, with the thorax more transverse, and the elytra longer and broader, one and a half times the length of the thorax, and the hind body a little narrowed towards apex ; it is also closely allied to *O. atomaria*, but is a little larger, and may be distinguished by the bright colour of the antennæ and legs, as well as by the broader club of the former. L. vix 1 mm.

In haystack refuse ; very common in the London district ; Tonbridge ; Hastings ; Wicken Fen ; Kenilworth ; Repton ; it is probably much more widely distributed than is at present supposed, and is most likely mixed with other species in collections made prior to 1870, in which year Dr. Sharp described it (Ent. Mo. Mag. vi. 282) ; the species appears to be regarded as synonymous with *O. pilosa*, which, according to Mulsant and Rey, is found sometimes in nests of *Formica rufa*.

O. granaria, Er. (*picescens*, Rey, *Microcera granaria*, Muls. et Rey). Rather broad and convex, deep black, shining, with the hind body obscurely lighter at its extreme apex ; head rather broad with eyes somewhat prominent ; antennæ short, rather strongly thickened towards apex, ferruginous, the last four joints forming a club ; the seventh is somewhat larger than the preceding, and viewed in certain positions causes the club to appear five-jointed ; thorax at base twice as broad as long, strongly narrowed in front, finely and thickly punctured ; elytra shining

black like the rest of the upper surface, rather convex, much longer and much more evidently punctured than thorax; hind body short, gradually but plainly narrowed towards apex, finely but distinctly punctured; legs ferruginous or pitchy red. L. 1 mm.

Very rare; introduced by Mr. G. R. Waterhouse on the authority of a specimen taken by himself (but without locality); has also occurred at Scarborough. According to Mulsant and Rey it is rare in France, and lives in cellars on the black mould (*Mucedo cellaris*) that grows on old walls, casks, &c.; it is found in company with *Cryptophagus*, *Mycetæa hirta*, and *Orthoperus atomarius*; these species are found together in cellars in Britain, and probably the *Oligota* will be found with them, if searched for.

The species is intermediate between *Microcera*, to which genus it is referred by Mulsant and Rey, and *Oligota* proper; the hind body is not narrowed very perceptibly until the last segments, and, as these are apt to run one into the other after death, the appearance of dried specimens is deceptive.

O. flavicornis, Lac. (*Microcera flavicornis*, Lac., *Somatium flavicorne*, Woll.). Broadest in middle, narrowed in front, and strongly narrowed behind, convex, with rather long and fine pubescence, and fine punctuation, shining black, with extreme apex of hind body pitchy; antennæ clear yellow with abrupt three-jointed club; thorax strongly transverse, much narrowed in front, very finely and thickly punctured; elytra plainly longer and more distinctly punctured than thorax; hind body short, conical, gradually and strongly narrowed from base to apex, with the sculpture distinct and rough; legs reddish-testaceous or ferruginous, with femora sometimes darker. L. vix. 1 mm.

In old faggots, dead leaves, moss, &c.; it has, however, been taken near London chiefly on the trunks and leaves of lime trees; not common. Kennington, Esher, Mickleham, Norwood, Wanstead (Essex); Liverpool district.

This species was originally described by Lacordaire as a *Hypocyptus*, to which genus the species of the sub-genus *Microcera* certainly bear a striking superficial resemblance.

O. apicata, Er. (*abdominalis*, Scriba, *xanthopyga*, Kr.). Very like the preceding, but easily distinguished by the gradual five-jointed club of the antennæ, and by having the two last segments of the hind body sharply and clearly yellow; the hind body is more shining, and much less distinctly sculptured; the elytra are often brownish or yellowish-brown, and the legs are lighter; the antennæ are slightly darker at apex, and not unicolorous as in *O. flavicornis*. L. vix 1 mm.

In debris of fern, moss, &c.; rare; Caterham, Mickleham, Cobham, Croydon, Ripley (Surrey), Bexley; The Holt, Farnham; New Forest; Devonshire; Sherwood Forest; Scarborough.

The sexual characters of the genus *Oligota* do not appear to be marked; in some species, however, the ventral plate of the seventh segment of hind body appears to be rounded and prolonged beyond the dorsal plate in the males.

The three concluding genera of the Aleocharinæ, *Myllæna*, *Gymnusa*, and *Deinopsis*, have many important points in common; although, therefore, they are widely separated by the tarsal system, yet it is certainly the best course to regard them as somewhat exceptional, and to place them together at the end of the group; they form the "Deuxième branche" of Mulsant and Rey's family Aléochariens, the "Gymnusaires," the first branch being the "Dinardaires;" they are chiefly characterized by their fusiform shape, setiform labial palpi, and the fact that the hind body is terminated by two more or less prominent styles; in *Myllæna* the anterior and intermediate tarsi are four-jointed and the posterior five-jointed, in *Gymnusa* all the tarsi are five-jointed, while in *Deinopsis*, which, according to the tarsal system, forms a separate tribe, they are all three-jointed.

MYLLÆNA, Erichson.

About thirty species are at present contained in this genus; these are very widely distributed, occurring in Europe, North, Central, and South America, Ceylon, Cape Verd Islands, and even in the Sandwich Islands; as Dr. Sharp observes, the habits of these creatures, which run swiftly in muddy places or live amongst damp moss, render it certain that they are not artificially distributed: the species are exceedingly difficult to distinguish, as they very closely resemble one another, and there are no striking sexual or structural differences; it is only by comparison that many of them can be separated, and it is therefore obvious that it is useless to attempt to tabulate them satisfactorily; the first examples of the genus found in Britain were taken by the Rev. A. Matthews in 1834, who was struck by finding on a piece of bark removed from a willow tree growing at the edge of the water near Weston-on-the-Green, Oxfordshire, "a multitude of small Brachelytrous insects, in a dormant state, each of which held its abdomen raised perpendicularly from its body, without at any time altering its position;" the labial spines then attracted his attention to the genus, and he discovered five more species which were described by his father (Entomological Magazine, Jan. 1838) under the generic name *Centroglossa*; Erichson, however, had a little before named the genus *Myllæna*; quite recently Mr. Matthews has published an exhaustive essay on the British species (Cistula Entomologica, Sept. 1883, Part xxvii.), which he brings up to twelve in number, so that all the European species hitherto known are found in Britain; as Mr. Matthews is our recognized authority on the group, I have followed his essay in the descriptions following: the differences between the species are in most cases comparative; I have therefore not given any tables.

The genus *Myllæna* is chiefly remarkable for the long slender setiform labial palpi, which are indistinctly two-jointed, the very short anterior tarsi, and the hind body strongly narrowed behind, which gives the species the appearance of belonging to the Tachyporinæ; the anterior and intermediate tarsi are four-jointed, and the posterior five-jointed:

this character gives it an affinity to the Bolitocharina, and separates it from *Gymnusa* and *Deinopsis*, with which it is usually closely associated.

M. dubia, Grav. (*conuroides*, Matth., ? *valida*, Muls. et Rey). Fuscous black, clothed with a fuscous pubescence, rather coarsely tuberculate, widest at the apex of elytra; antennæ long and slender; head acutely attenuated in front, mouth yellow; thorax widest at base; elytra as long and rather wider than the thorax; hind body as long as head, thorax, and elytra, acutely narrowed and attenuated towards the apex, penultimate segment edged with white, apical segment pale; legs and antennæ pitchy-testaceous. L. 3–3½ mm.

Marshy places, in moss, flood refuse, &c.; Lee, Cobham, Strood, Amberley, Norwood, Tonbridge, Higham, Merton (Surrey), Tilgate; Oxfordshire; Chat Moss; Coleshill, near Birmingham; Northumberland district; Scotland, local, Solway, Tweed, Forth, and Tay districts.

This species differs from the rest of the genus in its larger size, much broader thorax and elytra, and in the much greater dilatation of the base of the thorax.

M. intermedia, Er. (*attenuata*, Matth.). This species much resembles the preceding, but is distinctly smaller and narrower; the base of the thorax is less dilated, and the apex of the hind body is more broadly pale; the sculpture also is finer; according to Mulsant and Rey the elytra are more deeply emarginate at postero-external angles than in *M. dubia*, but in named specimens sent me by Mr. Matthews they appear to present a less emarginate appearance than in the latter species. L. 2–2½ mm.

Marshy places; common and generally distributed in the South and the Midland districts; not recorded from the North of England, but probably occurs in many places; Scotland, local, Solway and Tay districts.

Mr. Matthews remarks that this is perhaps the most common species of the genus.

M. minuta, Grav. (*minuta*, Matth.). Fuscous black, clothed with short grey pubescence, finely and closely tuberculate, head much produced and attenuated in front; mouth yellow; thorax slightly dilated at the base; elytra not longer, but rather wider than the thorax, hind body shorter than head, thorax, and elytra together, obtusely attenuated, apical and greater part of the penultimate segments rufo-testaceous; legs and antennæ testaceous. L. 1½–1¾ mm.

In marshy places, sphagnum, &c.; rare; most of the specimens recorded as this species belong to *M. infuscata*; it is recorded as not uncommon in the London district, and common in the southern parts of Scotland, but probably most of the specimens must be referred in both cases to the last-mentioned insect, which is exceedingly hard to distinguish from *M. minuta*, except by a careful comparison; the true *M. minuta* has occurred in Oxfordshire, and one or two other localities.

M. minuta differs from the first two species in its minute size, longer thorax, and shorter and stouter antennæ; from *M. Masoni* it may be known by its broader and longer thorax and elytra, and by its more depressed

form; from *M. infusata* it differs by its long and dilated thorax and long elytra, these parts being in the former insect unusually short and narrow.

M. Masoni, Matth. Sooty black, clothed with blackish pubescence, rather finely tuberculate; head rather large, obtusely produced, mouth concolorous, antennæ rather short, sooty black, with the apical joint acutely pointed; thorax rather long, widest before base, with sides rounded, and posterior angles nearly right angles; elytra small, rather narrower and much shorter than thorax, distinctly tuberculate, basal margins very obliquely truncate towards suture; hind body scarcely as long as the rest of the body with the apex obtuse, and not lighter; legs rather short and robust, sooty black, with the tarsi short and stout. L. $1\frac{1}{4}$ – $1\frac{1}{2}$ mm.

Very rare; taken by Mr. Matthews and his brother at Weston-on-the-Green, Oxfordshire.

This species differs from *M. minuta* in its smaller size, more robust form, short and very obliquely truncate elytra, sooty black colour, dark pubescence, and short robust pitchy black legs and antennæ.

M. gracilicornis, Fairm. (? *elongata*, Kr., ? *incisa*, Rey). Deep black, clothed with grey pubescence, very finely tuberculate or alutaceous; head rather large; thorax long, widest before base; elytra rather shorter and narrower than the thorax; hind body long and much attenuated, longer than half the entire length of the body, apex concolorous; antennæ deep black, very long and slender; legs long, pitchy black. L. $2\frac{1}{2}$ –3 mm.

A single specimen of this species (not two, as stated by Mr. Matthews, l.c. p. 39) was taken by myself on the coast a little west of Ventnor, Isle of Wight, under stones at the foot of a small waterfall in which *Dianous* was abundant. I have not been able to find it since.

M. Fowleri, Matth. Rather broad and depressed, deep black, clothed with short blackish pubescence, distinctly tuberculate; head large and broad, rather short, mouth concolorous, antennæ rather short, deep black, eyes rather large and prominent; thorax rather long, longer and rather broader than the head, distinctly tuberculate, widest before the base, basal margin very much rounded and margined with the angles rather obtuse; elytra very short, much shorter and not wider than thorax, distinctly tuberculate, emarginate at base near posterior angles; hind body broad and conic, rather longer than head, thorax, and elytra combined, all the segments black, with the edge of the penultimate segment conspicuously white; legs moderately long, pitchy black, with all the tarsi yellow. L. $2\frac{1}{2}$ –3 mm.

Very rare; Sherwood Forest, taken by Rev. A. Matthews.

This species differs from all its allies in its purely conical form and velvety black colour; from *M. gracilicornis* it may be known by its much broader form, and short robust antennæ.

M. Kraatzii, Sharp (*glauca*, Rye nec Aubé, *gracilicornis*, H. R. W. nec Matth.). Elongate, fuscous black, clothed with short fulvous pubescence, closely and rather finely tuberculate throughout; head moderate, rather short with the labrum alone rufo-fuscous; thorax rather large, shining, and very convex, much rounded in front with two erect setæ near each anterior angle, widest before the base, sides and basal margin slightly rounded and margined, posterior angles rounded; elytra short, rather narrower and much shorter than thorax, with two erect setæ near the shoulder, deeply notched within the posterior angles, and obliquely truncate towards the suture; hind body longer than half the entire length of the body, very bluntly narrowed, each segment furnished with a strong erect seta near the hinder angles, apical segment rufous, penultimate edged with white; antennæ and palpi piceous more or less pale; hinder legs piceous, anterior legs and all the tarsi testaceous; the setæ mentioned above are more or less common to all the species of the genus, but are very often rubbed off. L. 3–3½ mm.

Marshy places, in sphagnum; Woking, Chobham, Wimbledon Common; Hastings; Chat Moss; Scarborough; Scotland, rare, Forth and Tay districts.

This species is very distinct, but has been confounded with others; it differs from the next species *M. elongata* in its shorter and broader form, much longer and broader thorax and elytra, and darker and shorter legs and antennæ.

M. elongata, Matth. (*glauca*, Aubé). Very long and narrow, fuscous, covered with a thick grey silky pubescence, closely and rather strongly tuberculate; head rather large, mouth yellow; thorax moderate, not dilated posteriorly; elytra as long and as wide as thorax; hind body very long, twice as long as the anterior parts of the body, obtusely narrowed, with the apical segment and half the penultimate segment rufous; legs long, rufo-testaceous, antennæ long, pitchy testaceous. L. 3½–4 mm.

The habits of this species differ from those of the other members of the genus; it is usually found on beds of clayey mud devoid of herbage on the margin of water, often in company with *Bledii* and *Heteroceri*; if the mud is pressed with the foot it will emerge, run with great swiftness, and then take to flight; it is somewhat widely distributed: Sheppy; Tonbridge; Oxfordshire; Bewdley, Worcestershire (banks of Severn); Thornton Reservoir (Leicestershire); Scarborough; Northumberland district, Wallington and Wooler; Scotland, Lowlands, banks of rivers, Solway and Forth districts.

This species differs from its allies in its large size, narrow elongate and somewhat parallel form, very long hind body, long legs and antennæ, and shining silky pubescence.

M. græca, Kr. Elongate, very slender, and much narrowed behind, rufo-fuscous, with the thorax, elytra, and apical half of each segment of hind body rufous, clothed with grey pubescence, very finely tuberculate,

or alutaceous, head moderate, thorax rather short, widest before the base; elytra short, shorter and narrower than the thorax; hind body narrow, acutely attenuated, twice as long as the anterior parts of the body; legs and antennæ short and robust, rufo-testaceous. L. $2\frac{1}{2}$ –3 mm.

Scarborough; two specimens taken by Mr. Wilkinson, probably on the sea-coast, as particles of sea-sand were still adhering to them; it is found in Greece, the Caucasus Mountains, and Corsica.

This species is very distinct by reason of its slender attenuated form and rufous colour, in which latter point it resembles *M. brevicornis*, which is, however, a broader and more robust insect.

M. gracilis, Matth. (*forticornis*, Kr.). Long and narrow, fuscous black, clothed with grey pubescence, closely and strongly tuberculate; head large and broad; thorax small, almost quadrate; elytra longer and broader than the thorax; hind body longer than the anterior parts of the body combined, much attenuated, with the apical segment and the greater part of the penultimate segment rufous; legs and antennæ rather short, robust, rufo-piceous; antennæ distinctly thickened towards apex, in which latter point it differs from all its allies. L. 2 – $2\frac{1}{2}$ mm.

In marshy places, flood refuse, &c.; commoner than any of the other smaller species; London district, generally distributed; Oxfordshire; Cheshire; Birmingham and Midland districts generally; not recorded from the north of England or Scotland.

M. infuscata, Matth. (*v. minima*, Kr.). Fuscous, thickly clothed with grey pubescence, closely and rather strongly tuberculate; head rather short and broad, mouth yellow, thorax short, slightly dilated at base; elytra shorter and narrower than thorax, more so in some specimens than in others; hind body long, obtusely narrowed, half as long again as the rest of the body with the terminal segments wholly rufous; legs and antennæ moderate, slender, rufo-testaceous, sometimes darker. L. $1\frac{1}{2}$ –2 mm.

The specimens with rufo-testaceous antennæ and shorter elytra appear to be the *M. minima*, Kr., which appears to be only a variety of this species.

In marshy places; probably not uncommon and generally mistaken for *M. minuta*, from which both this species and *M. gracilis* may be distinguished by their much shorter thorax and elytra, the difference being very perceptible, but only determinable by actual comparison of specimens; *M. infuscata* differs from *M. gracilis* in its smaller size, narrow elongate form, short elytra, longer and more slender antennæ, and fuscous colour.

The *v. minima* has occurred at Merton (Surrey ?) and Wicken Fen.

M. brevicornis, Matth. (? *gracilis*, Heer, ? *rubescens*, Rey, ? *grandicollis*, Kies.). A very distinct species, rufo-testaceous, clothed with yellowish pubescence, very convex and rather shining, finely and closely tuberculate or alutaceous; head large, antennæ yellow, rather short, somewhat thickened towards apex, with the penultimate joints almost transverse; thorax rather long, widest at the base; elytra short,

about half the length of thorax, very obliquely truncate towards the suture; hind body rather obtusely narrowed, longer than the anterior parts of the body combined, sometimes dusky with the apical half of each segment rufous; legs yellow. L. $2\frac{1}{2}$ –3 mm.

Marshy places, in moss, &c., also by sweeping, and occasionally in wooded and not marshy localities; not uncommon; London district, general; Lewes; Glanvilles Wotton; Isle of Wight; Midland districts, widely distributed; Langworth Wood, Lincoln; Hartlepool; Northumberland district; Scotland, widely distributed, Solway, Tweed, Forth, Clyde, Tay, and Moray districts.

This very distinct species resembles a small *Conurus* in appearance, and may at once be distinguished by its rufous colour; the only other rufescent species is *M. græca*, which, besides being of a much more slender and narrower form, is apparently a littoral insect, and, moreover, is exceedingly rare.

In conclusion it may be useful to quote Mr. Matthews' comparative remarks on the four smaller species, and to point out that his measurements are larger than those usually given, as he has as nearly as possible given the lengths of the insects when alive, and they contract very much after death.

M. minuta may be known by its longer and broader thorax and elytra, and long slender antennæ.

M. Masoni is the smallest of the known species, and is easily recognized by its sooty black legs and antennæ and very short elytra.

M. infuscata is distinguished by its very short and narrow thorax and elytra, rather long and slender antennæ, and the usually fuscous appearance of all parts of its body.

M. gracilis is larger than either of the foregoing, and differs from all in its robust and shorter antennæ, which are distinctly incrassated towards the apex.

GYMNUSA, Gravenhorst

According to the tarsal system this genus belongs to the Aleocharina, all the tarsi being five-jointed; in the structure of the mouth organs, however, and in its general form, it bears a considerable resemblance to *Myllæna*, although it is a question whether this is not more apparent than real; the labial palpi are long and projecting, and to a certain extent setiform, but they are stouter than in *Myllæna*, and are made up of three joints, the first of these being very long, five or six times as long as the other two together, and the second and third being very short and about equal in length; in *Myllæna* they are more slender and only two-jointed; the posterior tarsi have the first joint more elongate than in *Myllæna*; the sexual characters of the genus *Gymnusa* are exceedingly peculiar, and besides this, as pointed out by Mulsant and Rey, the genus is the only one among the Aleocharinæ that has a distinct

setigerous pore on each side of the forehead near the eyes, a character that gives it a connection with some genera of the Staphylininæ; we possess both the European species.

Form broader, narrowed in front and behind; elytra very closely punctured G. BREVICOLLIS, Payk.
Form narrower, subparallel; elytra rather coarsely punctured G. VARIEGATA, Kies.

G. brevicollis, Payk. Broad fusiform, very finely and rather thickly pubescent, black, moderately shiny; head much narrower than thorax, contracted in front; antennæ long and slender, black with the first joint reddish testaceous, joints 4–10 gradually a little less long, but all distinctly longer than broad; thorax at base nearly twice as broad as long, much narrowed in front, as broad at base as elytra, very finely punctured; elytra short, hardly longer than thorax, the two together broadly emarginate at apex, finely and thickly and somewhat rugosely punctured, dull; hind body strongly narrowed to apex finely and thickly punctured, sixth segment much longer than the preceding; legs black, with the tarsi reddish testaceous. L. 5–5½ mm.

The sexual characters are very hard to describe; the male has the seventh dorsal segment of hind body rather deeply and angularly emarginate, and the ventral plate is prolonged between the emargination in an obtuse angle; between the two plates emerge two spiniform styles arising from the sexual armature; in the female the sexual armature is more produced, and terminates in a central tongue-shaped process, which is rather long, and is contracted to a point at apex, with a lateral sharp lobe or tooth-like process on each side.

Marshy places; in sphagnum, &c.; rare; Chobham; Esher; Loughton; Horning Fen, Norfolk; Chat Moss; Cheshire; Manchester (in some numbers); Cannock Chase; Askham Bog; Scarborough; Scotland, rare, but widely distributed, Solway, Tweed, Forth, Tay, and Moray districts.

G. variegata, Kies. This species is very distinct from the former by its more parallel form, more shining appearance, and much stronger punctuation, as well as by the fine yellow pubescence which is scattered over its surface in more or less distinct patches, and gives to fresh specimens a variegated appearance; the antennæ have the first joint concolorous with the rest, and the penultimate joints a little shorter; the elytra are shorter, and the hind body more convex; the tarsi also are of a somewhat darker colour; the sexual characters are also somewhat different, and not so marked, especially in the female. L. 4–5 mm.

Marshy places; in sphagnum; local, but occasionally occurs in numbers; it appears not to be found in the London district, and the only record I have from the South is Glanvilles Wootton, rare (taken by Mr. Dale and Mr. Wollaston at Roundchimneys Pond, June 5th, 1874); Sutton Park, Birmingham; Cannock Chase; Chat Moss; Derbyshire; Ringing Keld, Scarborough; Manchester; Northumberland district, rare, banks of Irthing and near Wooler; Scotland, locally common, Lowlands, Highlands, Tweed, Solway, Forth, Tay, Argyle, and Dee districts.

DEINOPSINA.

The single European species at present contained in this tribe very much resembles a broad and robust *Myllæna*; the tribe is characterized by having all the tarsi three-jointed; it has already been discussed in connection with *Myllæna* and *Gymnusa*.

DEINOPSIS, Matthews.

In general appearance, as above stated, the species belonging to this genus bear a strong resemblance to *Myllæna*, but besides the difference in the number of joints in the tarsi, the labial palpi are much shorter, and consist of three joints; the form, moreover, is broader, and is intermediate between *Myllæna* and *Gymnusa*, from which latter genus *Deinopsis* is distinguished by the shorter, three-jointed, tarsi, the head much less narrowed in front, the penultimate joint of the maxillary palpi being more plainly thickened, the broader and more compressed tibiæ, much shorter tarsi, &c.; the genus at present contains twelve species, four from South America, two from Central America, two from North America, and one each from Australia, Japan, Ceylon, and Europe.

D. crosa, Steph. (*fuscata*, Matth., *laticollis*, Er.). Rather broad, fusiform, very finely and thickly pubescent, dull black; head strongly transverse, eyes rounded, antennæ very slender and rather long, obscurely red or brownish with the first joint sometimes lighter; joints 4-10 oblong, gradually a little shorter; thorax very strongly transverse, more than twice as broad as long at base, much narrowed in front, very finely and obsoletely punctured or shagreened, fully as broad at base as base of elytra; elytra a little longer than thorax, very finely and thickly punctured; hind body comparatively short, rather strongly and gradually narrowed behind, very finely shagreened; legs dark with the tarsi testaceous or reddish testaceous, and the anterior and intermediate trochanters and all the knees reddish; sometimes the tibiæ are entirely red; tarsi very short, setiform. L. 3-3½ mm.

Male with seventh dorsal segment of hind body slightly emarginate in middle of apical margin, sixth ventral segment truncate; female with seventh dorsal segment deeply cleft in middle of apical margin, sixth ventral segment slightly bisinuate.

Marshy places; in moss, decaying leaves, flood refuse, &c.; local but not uncommon in the London and Southern districts; I know of no locality further north than Lincoln, where I have taken it sparingly in flood refuse; Cobham, Caterham, Peckham, Lee, Sheerness, Tilgate Forest, Belvedere, Cowley, Horsell, Reigate, Tonbridge; St. Leonards Forest; Hastings; Portland; Thornton Reservoir, Leicestershire (plentiful, Dr. Power).

TACHYPORINÆ.

This sub-family contains about twenty or twenty-five genera, which are widely distributed throughout the world, but are more characteristic

of the northern and temperate regions than of the tropics ; they form a natural group, and may be known, as a rule, by their external appearance, their shape being fusiform, with the hind body more or less strongly narrowed and conical ; the group Tachyporini was first established by Erichson, and defined by him as being composed of Staphylinidæ, “having the prothoracic stigmata apparent, and the antennæ inserted at the base of the forehead, under a lateral border, above the mandibles, and below the eyes ;” Pandellé (Monograph of the European Tachyporini, Ann. Franc. 1869, p. 261) takes exception to this definition, and distinguishes them by the smooth head, which is not impressed or contracted behind into a neck, the shape of the thorax, which is more contracted in front than behind, and is broadest behind middle, the conspicuous prothoracic stigmata, and the broad epipleuræ of elytra, which are sharply bounded by a distinct keel above and below, as well as by the large coxæ ; to these may be added these further characters of Mulsant and Rey :—Forehead evidently prolonged before the insertion of antennæ ; temples separated beneath by a wide interval ; tibiæ usually spinose ; the maxillary palpi consist of four joints and the labial palpi of three in all the genera. The group may be divided into two very natural tribes as follows :—

- I. Antennæ 10-jointed ; all the tarsi 4-jointed ; form sub-globosely triangular, very small HYPOCYPTINA.
- II. Antennæ 11-jointed ; all the tarsi 5-jointed ; form more or less elongate, larger TACHYPORINA.

HYPOCYPTINA.

This tribe contains one British genus, *Hypocyptus*, which is sufficiently characterized by the number of joints in the antennæ and tarsi, as well as by its shape and minute size ; there is one other European genus contained in the tribe, and Dr. Horn has recently established two or three others for single North American species.

HYPOCYPTUS, Mannerheim. (*Cypha*, Steph.)

This genus comprises from twenty to thirty species, which chiefly occur in the European and North American regions ; a species, however, has been described from Ceylon, and it is probable that the genus is very widely distributed, as the minute size of its members renders it very easy for them to be overlooked : there is hardly any genus that is in such a state of confusion ; Pandellé in his Monograph of the European Tachyporini (Ann. Soc. Ent. de France, 1869, p. 281–285) enumerates eleven species ; in the last European catalogue ten species are mentioned ; Mulsant and Rey, however, give twelve species as found in France alone ; several of these are evidently synonymous with other species, and are regarded as such by Heyden, Reitter, and Weise ; in the British collections of the genus now before me I believe that there are very probably

one or two undescribed species, but I should be sorry to describe them without making a much more careful study of the genus than I have been able to do; the table given below must, therefore, be considered as more or less provisional; the species have the antennæ ten-jointed, and all the tarsi four-jointed.

- | | |
|--|-----------------------|
| I. Antennæ with the seventh joint evidently longer, and a little thicker than the sixth, joints 8-10 forming a gradual club | H. LONGICORNIS, Payk. |
| II. Antennæ with the seventh joint not longer or thicker than sixth, sometimes shorter. | |
| i. Antennæ dark, or dark ferruginous red, with base sometimes lighter; elytra dark reddish-brown, black-brown, or black; club gradual. | |
| 1. Fuscous; male with the first joint of anterior tarsi strongly dilated; antennæ reddish or reddish brown with base lighter | H. LEVIUSCULUS, Mann. |
| 2. Black; male with the first joint of anterior tarsi not or scarcely dilated; antennæ nearly black | H. OVULUM, Heer. |
| ii. Antennæ entirely yellow testaceous. | |
| 1. Elytra dark. | |
| A. Club rather strongly marked; antennæ shorter; apex of hind body almost concolorous. | H. SEMINULUM, Er. |
| B. Club gradual; antennæ longer; apex of hind body broadly testaceous | H. APICALIS, Bris. |
| 2. Elytra red or reddish. | |
| A. Size very small; apex of hind body not sharply testaceous | H. PUNCTUM, Mots. |
| B. Size larger; apex of hind body broadly and sharply testaceous | H. DISCOIDEUS, Er. |

H. longicornis, Payk. (*acuminatum*, Marsh, *rufipes*, Steph., *nigripes*, Steph., *parvula*, Steph., *granulum*, Grav., *globulus*, Lac., *agaricina*, Steph.). Very convex, subglobose, shining black, with the margins of thorax broadly testaceous, and the elytra pitch-black, or lighter or darker reddish brown, with the margins lighter, pubescence fine and scanty; head narrower than thorax, smooth, antennæ long, longer in male than in female, lighter or darker pitchy testaceous, seventh joint evidently longer and thicker than sixth (appearing, in male, to form part of the club), club gradual, longer and more slender in male than in female; thorax very short, strongly narrowed in front, almost as broad behind as elytra, smooth, posterior angles rather marked; elytra transverse, one and a half times as long as thorax, sparingly pubescent, very finely and sparingly punctured; hind body retractile, very finely and sparingly punctured, strongly narrowed behind, apex often pitchy, or pitchy testaceous; legs pitchy red or pitchy testaceous. L. $1\frac{1}{3}$ mm.

Male with the seventh ventral segment deeply and angularly emarginate, sixth segment prolonged in an obtuse arc over the middle of seventh, segment of armature projecting, rugosely punctured.

In haystack refuse, moss, dead leaves, decaying sea-weed, &c.; also by sweeping and beating; very common and generally distributed throughout the kingdom.

In Dr. Sharp's collection there are two specimens named by M. Pandellé "*longicornis*, var.;" these are smaller and darker than the usual type form, with the antennæ shorter, and the elytra more closely punctured; the colour is a uniform deep shining black with at most the very extreme edges of thorax and elytra lighter: this variety I propose to name *v. concolor*.

H. læviusculus, Mannh. (*nec* Redt.) (*anisotomoides*, W. C. ?). Smaller than the preceding, and distinguished by having the first joint of the anterior tarsi in male strongly dilated, and especially by the seventh joint of the antennæ being a little shorter and a very little thicker than the sixth; the colour is shining pitch-black with the lateral margins of thorax narrowly testaceous, and the elytra reddish brown; antennæ rather long and slender, terminated by a gradual three-jointed club, dark red or brownish with the base lighter; thorax very finely and sparingly punctured, with the posterior angles rounded; elytra strongly transverse, very finely and rather thickly punctured; hind body less finely and thickly punctured than elytra, with apex often brownish or reddish; legs pitchy red, with tarsi paler. L. 1 mm.

Male characters much as in the preceding species, except that the first joint of the anterior tarsi is much more strongly dilated.

In moss, old faggots, vegetable refuse, &c.; rare; Chatham; Shirley; Coleshill; Sutton Park; Liverpool; Hartlepool; Northumberland district, Gosforth, Long Benton, &c.; Scotland, Lowlands, Solway, Forth, Tay, Dee, and Moray districts; Ireland, Portmarnock.

I believe that several of these records, however, are made in error, owing to the fact that *H. anisotomoides* of Waterhouse's catalogue is referred to this species instead of to *H. seminulum*; *H. læviusculus* appears to be moderately common over a great part of France.

H. ovulum, Heer (*nigripes*, Heer, *pygmaeus*, Kr., *lancifer*, Pand., *læviusculus*, Redt., *nec* Mannh.). A very small species, shining black, or pitchy black, with the elytra sometimes reddish brown, and the apex of hind body lighter; head finely and sparingly punctured; antennæ more or less elongate and slender, terminated by a gradual three-jointed club, dark red, with the base lighter, sixth and seventh joints about equal in length; thorax almost impunctate, shining pitch-black, with the lateral margins very narrowly testaceous or reddish; elytra strongly transverse, one and one-third times as long as thorax, very finely and thickly punctured; hind body finely and sparingly punctured, with the apex often lighter; legs dark reddish-brown, often almost black, tibiae and tarsi a little lighter. L. $\frac{2}{3}$ mm.

Male characters much as in the preceding, except that the first joint of the anterior tarsi is not or scarcely dilated.

In moss, &c.; rare; Mickleham; Croydon; Withington, Cheshire; Manchester.

M. Pandellé describes a species *H. lancifer*, which comes so close

apparently to this species that it can hardly be separated; it appears, according to his description (l.c. p. 284), to differ in having the posterior angles rounded, the anterior tarsi of male simple, and the segment of armature in male lanceolate, whereas in *H. ovulum* (= *nigripes*) the posterior angles are marked or scarcely rounded, the anterior tarsi of male are slightly dilated, and the segment of armature in male is rounded behind; according to Mulsant and Rey, however (Brévipennes, Tachyporiens, p. 13), *H. lancifer* has the posterior angles of thorax almost right angles, and in this point differs from *H. ovulum*, in which they are rounded or almost rounded. In Dr. Sharp's collection there is a specimen from Duddingstone Loch, Scotland, which has been named by Pandellé as *H. lancifer*; this is decidedly larger and darker than ordinary specimens of *H. ovulum*; the antennæ and legs are dark pitchy black, and the antennæ are longer; the posterior angles of thorax in this specimen are quite rounded off; it also appears to present Mulsant and Rey's rather important character of having the sixth and seventh joints of the antennæ somewhat oblong instead of subglobose as in *H. ovulum*; as, however, these writers contradict M. Pandellé as regards the shape of the posterior angles of the thorax, and as there seems to be considerable confusion at present attaching to the species, it appears to be the best course, at all events for the present, to regard *H. lancifer* as at most a variety of *H. ovulum*, especially as Dr. Sharp's specimen is considerably larger than any specimen of *H. ovulum* I have seen, whereas M. Pandellé gives the same lengths for the two species. In the catalogue of Heyden, Reitter, and Weise *H. lancifer* is not mentioned even as a synonym.

H. seminulum, Er. (*pulicarius*, Er., *anisotomoides*? W. C.). A very small, subglobose, species, shining pitch-black with the sides of thorax more or less narrowly testaceous, clothed with very fine and rather close ashy pubescence; antennæ reaching to about the middle of the elytra, entirely yellow testaceous, with a rather sharply defined club; thorax very short, almost smooth, or scarcely punctured, posterior angles scarcely rounded, or even almost right angles; elytra strongly transverse, about a third longer than thorax; hind body very finely and sparingly punctured, with apex lighter; legs testaceous, with the four posterior femora often dark. L. vix $\frac{2}{3}$ mm.

Male with the sixth and seventh segments of hind body projecting, seventh ventral segment emarginate at apex, eighth visible; first joint of anterior tarsi rather strongly dilated.

In rotten wood, fungi, by sweeping under fir trees, &c.; rare; Croydon, Hampstead; Scotland, Eccles near Thornhill, Dumfries and Braemar; I have seen specimens from these localities which appear to belong to this species: other localities recorded are Esher, Woking, Strood, Folkestone, Salford Priors, Coleshill, and Cannock Chase; probably several of these records must be referred to *H. punctum*, which, after all, is very likely nothing but a light variety of *H. seminulum*.

H. punctum, Mots. (*seminulum*, -Er., var. ?). The smallest species

of the genus; it closely resembles *H. seminulum* in many points, and may be merely a smaller and lighter-coloured variety of that species; the antennæ, however, are, perhaps, a little longer in proportion, and have the sixth and seventh joints a little less short, and their club rather more elongate; the posterior angles of the thorax are said to be a little more rounded, but this is a point that is not to be depended upon in this genus, as authors appear to differ very widely regarding it in describing the same species; the colour is much lighter, the elytra being reddish, and the sides of thorax and margins of segments of hind body being testaceous; the legs also are entirely testaceous. L. $\frac{1}{2}$ mm.

In vegetable refuse, and also under the same circumstances as the preceding; I have seen specimens from Riddlesdown, Seaton (Devonshire), Coleshill near Birmingham, and Dabton Loch, Scotland; it appears to be rather widely distributed, and, as stated above, in all probability several of the localities given for *H. seminulum* apply to this insect.

H. apicalis, Brisout (*H. pulicarius*, var. *a*, Muls. et Rey). Very closely allied to *H. seminulum*, but larger, with shorter and less thick pubescence, and the last three segments of the hind body testaceous: according to Brisout this insect comes very near *rufipes*, Kr. (which Pandellé (l.c. p. 282) appears to consider only a small var. of *longicornis*), is rather larger, of a blacker colour, with longer antennæ, and a lighter-coloured hind body, which is more strongly contracted at apex. L. 1 mm., about.

Taken by Dr. Power at Mickleham: it appears to be a distinct species, and to be connected rather with *H. longicornis* than with *H. seminulum*.

H. discoideus, Er. (*biguttatus*, Matth.). The most distinct species of the genus that we possess; shining pitch-black, with the disc of the elytra bright reddish-testaceous, the base and sides being more or less infusate; the sides of the thorax are pale, and the apex of hind body broadly testaceous; pubescence long, fine, and close, of a greyish yellow colour; head very finely and sparingly punctured, antennæ moderately long, testaceous, with club more gradual in male than in female; thorax very short, very finely and sparingly punctured, with posterior angles rather strongly rounded; elytra strongly transvers, one and a third times as long as thorax, very finely and thickly punctured; hind body finely and rather sparingly punctured, retractile, but rather long when drawn out to its full extent; legs testaceous. L. 1 mm., about.

Male with the last segments of hind body projecting, seventh ventral segment emarginate at apex, eighth apparent; first joint of anterior tarsi dilated.

In vegetable refuse, &c., in marshy and fenny districts; very local, but sometimes very common where it occurs; Dagenham, Essex; Hastings; Horning Fen and other fen districts on the east of England; the species is rare, but rather widely distributed, in France.

It is almost impossible to determine with accuracy the closely allied species of *Hypocyptus*, unless they are set fresh soon after death; the hind

body is so strongly retractile that they quite lose their shape, and the antennæ are apt to change colour; it should be remembered that in some species the antennæ of the male are longer, and have the club of the antennæ less sharply defined than in the female, and that the posterior angles of thorax are rather hard to see, and appear somewhat different in different lights; this explains the apparent discrepancy regarding them found in certain authors' descriptions of the same species.

TACHYPORINA.

All the European genera contained in this tribe are represented in Britain, with the exception of *Erchomus*, Mots. (*Coproporus*, Kraatz); only one species of this genus has been found in Europe, but it appears to be the chief representative of the sub-family in the tropics, where it appears to take the place of *Tachinus*, which is essentially a boreal genus; the arrangement of the genera of the *Tachyporina* is not yet settled; by some authors *Lamprinus* and *Bryoporus* are included under *Tachyporus* and *Megacronus* respectively, whereas others would still further divide this latter genus and *Mycetoporus*: our genera may be distinguished as follows:—

- I. Temples not margined at sides; head usually transverse; seventh dorsal segment of hind body always more or less divided into lobes in female; intermediate and posterior tarsi not elongate.
 - i. Hind body not or scarcely visibly bordered at sides; head and thorax pubescent CONOSOMA, *Kraatz*
(*Conurus*, Steph.).
 - ii. Hind body more or less plainly bordered at sides; head and thorax not pubescent.
 1. Last joint of maxillary palpi shorter than the penultimate.
 - A. Posterior tibiæ and tarsi slender, not or scarcely compressed; fourth joint of tarsi slender, much shorter than third; antennæ long TACHYPORUS, *Grav.*
 - B. Posterior tibiæ and tarsi robust and compressed; fourth joint of tarsi rather thick, nearly as long as third; antennæ short LAMPRINUS, *Heer.*
 2. Last joint of maxillary palpi longer than, or as long as, the penultimate.
 - A. Mesosternum carinate; anterior tarsi simple in both sexes CILEA, *Duv.*
 - B. Mesosternum not carinate; anterior tarsi of male dilated TACHINUS, *Grav.*
- II. Temples margined at sides; head longer than, or at least as long as broad; seventh dorsal segment of hind body simple and entire in both sexes; intermediate and posterior tarsi elongate.
 - i. Last joint of maxillary palpi about equal to the penultimate or a little longer.
 - A. Maxillary palpi short and stout; labial palpi thick MEGACRONUS, *Thoms.*

- B. Maxillary palpi filiform; labial palpi not thickened.
- a. Last joint of maxillary palpi very little narrower at base than apex of penultimate joint. *BOLITOBIUS*, *Steph.*
 - b. Last joint of maxillary palpi plainly narrower at base than apex of penultimate joint. *BRYOPORUS*, *Kraatz.*
 - ii. Last joint of maxillary palpi small or very small, slender, and subulate, distinctly shorter and narrower than the penultimate *MYCETOPORUS*, *Mannh.*

CONOSOMA, *Kraatz.* (*Conurus*, *Stephens.*)

This name must be adopted for the genus *Conurus*, *Stephens*, the latter name having been used in ornithology; the genus contains about eighty described species, which are very widely distributed throughout the world in both the northern and southern hemispheres. There are six British species, the first two of which in the following table are much larger than the rest, and are easily distinguished by their size; the species for the most part are found in faggots, rotten stumps, and among dead leaves; they are very rapid in their movements; the sexual characters do not vary much in our species, and need not be specified separately; in the male the seventh dorsal segment is entire and more or less rounded at apex, the seventh ventral segment is angularly emarginate at apex, disclosing the segment of armature; the anterior tarsi are more or less strongly dilated; in the female the seventh dorsal segment is furnished with four long, more or less sharp, parallel lobes, of which the two central ones are more slender and slightly shorter, and the seventh ventral segment is entire, rounded, and ciliate at apex. The *Conuri* may be at once separated from the *Tachypori* by their very strong pubescence and consequent dull appearance.

The larva of *Conurus littoreus* is described by *Perris* (*Ann. Franc.* 1846 (p. 332 and pl. 9)) under the name of *Tachyporus cellaris*: it is rather depressed, linear, smooth and shining, chiefly of a reddish-brown colour, the portions at the sides of and between the scuta being whitish, and the last segment of abdomen entirely whitish; the prothorax is larger than the meso- and meta-thorax, the three together being trapezoidal; the abdominal segments, except the last, are almost hexagonal, contracted in front and behind, so that the intersections are marked; the last segment is quadrilateral, and is furnished with two long reddish four-jointed cerci, and a long whitish anal appendage which is bilobed at its extremity; * the legs are rather long, and terminate in a single claw; the sides of the head and the lateral angles of the segments are furnished with reddish hairs. L. 5-6 mm.

This larva lives under bark of dead logs of oak, pine, &c., and feeds on the insects contained in the fungi that grow under the bark; it is swift in its movements; the pupa is white and smooth (except for a few "styli motorii" on the vertex, &c.), and presents no peculiarity.

* The anal appendage in certain larvæ is often slightly lobed or furnished with warty prominences; this formation enables it to be used for purposes of progression.

- I. Base of thorax very slightly emarginate before scutellum, which is always exposed; elytra dark with large basal reddish-testaceous spot; length 4-5 mm. *C. LITTOREUM, L.*
- II. Base of thorax not emarginate, more or less (often entirely) covering scutellum.
 - i. Elytra dark or reddish, without definite spot.
 - 1. Length 4-5 mm. *C. PUBESCENS, Grav.*
 - 2. Length 2-2½ mm.
 - A. Upper surface entirely dark.
 - a. Elytra longer than thorax; posterior tarsi longer than tibiæ; antennæ dark with base and apex lighter *C. IMMACULATUM, Steph.*
 - b. Elytra at suture not longer than thorax; posterior tarsi hardly as long as tibiæ; antennæ entirely yellow *C. PEDICULARIUM, Grav.*
 - B. Upper surface chiefly reddish or testaceous, elytra a little longer than thorax *C. LIVIDUM, Er.*
 - ii. Elytra dark with a large, plainly marked, orange-red testaceous spot at base; length 2 mm. *C. BIPUNCTATUM, Grav.*

C. littoreum, L. Broad in front and much narrowed behind, very thickly pubescent, dull pitchy brown with the posterior angles of thorax and a large well-defined patch at base of elytra reddish testaceous; head sparingly punctured, but very finely, the rest of the upper surface very finely and thickly punctured; antennæ long and slender, testaceous with the middle joints often darker; thorax rather long, narrowed in front, rather broader at base than elytra, posterior angles somewhat recurved and rather sharp; elytra half as long again as thorax, a little narrower at apex than at base; hind body strongly contracted at apex, dark with apical margins of segments slightly reddish; legs testaceous. L. 4-5 mm.

In faggots, bottoms of woodstacks, under loose bark, in fungi, rotten wood, &c.; not uncommon; London district, generally; Southern Counties and Midlands, widely distributed; Yorkshire; Lincoln; Manchester district; Northumberland district, not uncommon; Scotland, Lowlands, Forth and Solway districts.

C. pubescens, Grav. Of the same size and shape as the preceding, which it closely resembles; the absence, however, of the well-defined reddish-testaceous spots at base of elytra will at once distinguish it; the colour of the elytra is variable, usually brownish, and reddish on disc; sometimes they are concolorous with the rest of the body (*v. constans*, Sharp), and occasionally chestnut brown; the scutellum is covered, or almost covered by the base of thorax; the elytra are shorter, and the antennæ also are shorter, and have the penultimate joints slightly transverse; the punctuation also of the upper surface is not quite so close. L. 4-5 mm.

In haystack refuse, moss, &c.; generally distributed and commoner than the preceding.

C. immaculatum, Steph. (*Conurus fuscus*, Er.). Pitchy black, thickly pubescent, but with front parts somewhat shining, apical margins of segments of hind body distinctly reddish testaceous; head almost smooth, antennæ rather short, and somewhat thickened, dark or brownish red with base and apex yellow, penultimate joints rather strongly trans-

verse ; thorax a little broader behind than elytra with posterior angles recurved and rather sharp ; elytra a little longer than thorax (occasionally, if the base of the thorax much overlaps the base of elytra, this is not very evident), together with the latter finely and very thickly punctured ; hind body strongly narrowed behind, very finely and thickly punctured ; legs red. L. $2\frac{1}{2}$ mm.

In fungi, moss, &c. ; occasionally in sandpits ; local ; London district, general ; The Holt (Farnham) ; Hastings ; Wicken Fen ; Langworth Wood, Lincoln ; Manchester district ; Northumberland district, scarce ; not recorded from Scotland.

C. pedicularium, Grav. In colour and general appearance much resembles the preceding, but is considerably smaller, and may be at once separated by the much shorter and entirely testaceous antennæ ; the elytra also are evidently shorter, being not longer and often appearing shorter than thorax ; the posterior tarsi also are shorter than the tibiæ, whereas in the preceding species they are longer. L. 2 mm.

In moss, dead leaves, refuse, &c. ; not common ; Amberley, near Arundel ; Tonbridge ; Wicken and other Cambridgeshire Fens ; Ireland, Killiney near Dublin ; has not occurred in the Midlands or North of England, or in Scotland.

C. lividum, Er. Entirely reddish testaceous, with the thorax more brightly coloured than the hinder parts, the elytra at sides and near scutellum, and the base of segments of hind body being sometimes dusky ; in structure it closely resembles the preceding, and by some authors is considered merely a variety of that species, or vice versâ *C. pedicularium* is by others considered a variety of *C. lividum* ; the latter, however, differs from the former, apart from colour, in being a little more closely pubescent, and in having the elytra comparatively a little longer ; the antennæ also are slightly longer, and the relative length of the joints is a little different ; it must be allowed, however, that except for the colour, it would be very difficult to separate the species. L. 2 mm.

In moss, haystack and other refuse, at roots of grass in marshy places, &c. ; common and generally distributed throughout the kingdom.

C. bipunctatum, Grav. This species in size, shape, and general colour closely resembles *C. pedicularium*, but is easily distinguished by each elytron having a very distinct and well-marked orange-red spot at base ; the elytra, moreover, are furnished at sides and apex with pores bearing long and distinct setæ, a character which separates the species from all the others ; the antennæ are short, brownish, with the first four joints and the apical joint yellow, the penultimate joints being rather strongly transverse ; the elytra are a third longer than thorax ; the legs are reddish, with the posterior tarsi as long as, or somewhat longer than, the tibiæ. L. 2 mm.

In rotten wood ; rare ; a single old specimen existed in Mr. G. R. Waterhouse's collection, until Dr. Power found a colony in an old willow tree in a pit near Highgate ; Mr. J. J. Walker has also taken it at Chatham : there is no other British locality known at present ; in France the species is widely distributed, but rare.

TACHYPORUS, Gravenhorst.

The species belonging to this genus are easily distinguished from the preceding by their much brighter appearance, which is due to the absence of pubescence on the head and thorax, and its scantiness on the hinder parts of the body; the genus comprises some fifty species, which are confined to the northern and temperate portions of the Old and New Worlds, and are within their range evenly distributed; they are chiefly found in moss; one or two species are exceedingly common, and from their bright colouring are well known to ordinary observers as well as to entomologists; in fact it is hardly possible to gather a handful of moss without finding in it either *T. hyppnorum* or *T. chrysomelinus*; the sexual characters, although somewhat striking, are very much alike in the several species, and need not be separately described: in the male the seventh dorsal segment of hind body is entire, and somewhat rounded at apex, the seventh ventral segment is strongly emarginate, disclosing the segment of armature, and the anterior tarsi are plainly dilated; in the female the seventh dorsal segment is furnished with four narrow sharp lobes of about equal length, the outer pair differing slightly in shape, and the seventh ventral segment is prolonged, rounded, and ciliate, concealing the segment of armature; the anterior tarsi in the latter sex are feebly dilated; the external structural differences of the species throughout the genus are very slight, and it will be noticed that the distinctions rest in great measure on size and colour variations; as a natural consequence there are considerable differences of opinion regarding the specific value of some of the species that have been described.

The larva of *Tachyporus chrysomelinus* very much resembles in structure that of *Tachinus rufipes*, and is chiefly distinguished by its stouter antennæ, and the absence of warty prominences at the apex of the anal appendage; it is about quarter the size of the last-mentioned larva, and is pale, with the head and prothorax yellow, and all the setæ pale; the scuta of the rest of the segments and the first joint of the cerci are somewhat fuscous.

I. Head and thorax reddish testaceous.

- i. Elytra testaceous, with basal half black; hind body testaceous with sixth and seventh segments black *T. OBTUSUS*, *L.*
- ii. Elytra testaceous, with scutellary region only darker; hind body black (reddish in immature specimens), with sixth segment testaceous *T. FORMOSUS*, *Matth.*

II. Head black or pitchy black.

- i. Thorax entirely testaceous.
 - 1. Antennæ plainly, although not strongly, thickened towards apex; elytra reddish testaceous or yellowish, not darker at sides.
 - A. Thorax and elytra testaceous red; size larger; antennæ testaceous with base lighter than the rest *T. SOLUTUS*, *Er.*
 - B. Thorax and elytra straw-coloured; size smaller; antennæ dusky towards apex *T. PALLIDUS*, *Sharp.*
 - 2. Antennæ not thickened; elytra reddish testaceous or reddish brown, darker at least at sides.

- A. First joint of anterior tarsi as long as, or longer than, second.
 - a. Elytra reddish testaceous with sides and scutellary region darker; size larger **T. CHRYSOMELINUS, L.**
 - b. Elytra red or red-brown with scutellary region, base, and sides obscurely darker; size smaller **T. HUMEROSUS, Er.**
- B. First joint of anterior tarsi plainly shorter than second; thorax and elytra reddish testaceous with disc of thorax often, and scutellary region and sides of elytra always, plainly darker **T. TERSUS, Er.**
- ii. Thorax black or pitchy black with the sides more or less broadly testaceous.
 - 1. Form broader and more convex; colour of thorax and elytra darker; elytra less distinctly sculptured.
 - A. Elytra a little broader in front than behind, bright red with scutellary region and sides black; size larger **T. HYPNORUM, F.**
 - B. Elytra at least as broad behind as in front, sometimes a little broader, dusky red or reddish brown on disc; size smaller **T. PUSILLUS, Grav.**
 - 2. Form narrower and more depressed; colour of thorax and hind body lighter; elytra more distinctly sculptured; size small **T. BRUNNEUS, L.**
- iii. Thorax reddish testaceous with the anterior portion dark; elytra dark with apical portion sharply testaceous **T. TRANSVERSALIS, Grav.**

T. obtusus, L. Testaceous, or reddish testaceous, shining, with the breast, basal half of elytra, and sixth and seventh segments of hind body black; head smooth; antennæ long, slightly thickened towards apex, testaceous or ferruginous with the four basal joints lighter, penultimate joints longer than broad; thorax smooth, strongly narrowed in front, with posterior angles blunt and rounded (as in all the other species); elytra quite a third longer than thorax, finely and rather thickly punctured; hind body finely and thickly punctured at the base of each segment, and strongly setose especially at apex and sides; the lateral and apical setæ, which are thicker on the hinder parts of the body than on the front parts, are common to all the species; legs testaceous. L. 3-3½ mm.

In moss, haystack refuse, dead leaves, &c.; abundant throughout the kingdom.

V. nitidicollis, Steph. In this variety the head, disc of thorax, and basal part of hind body are more or less piceous, or rufo-piceous, and the black colour covers the greater portion of the elytra, only a small portion at apex being light; its general appearance is therefore much darker, and very different from that of the type: very common in many parts of Ireland (Armagh, Galway, Westport, Waterford, &c.); Scotland, Tweed and Forth districts; England and Wales, not common; recorded by Stephens from the London district, and it is said to have occurred in Sherwood Forest; Mr. Horner has recently taken it at Tonbridge.

T. formosus, Matth. (rufus, Er.). This species resembles the pre

ceding, but the elytra are entirely testaceous with the scutellary region only darker, and the hind body is dark with the sixth segment only entirely testaceous; the antennæ are also rather darker towards apex; the colour of the hind body will at once distinguish it from immature light-coloured examples of *T. obtusus*, which sometimes are confused with it; in mature specimens the colour is very bright and clear, but in specimens that are not quite mature the darker parts of the hind body are reddish; the margins of the basal segments are always reddish yellow. L. 3 mm.

In moss and refuse of reeds and grass; rare; Tonbridge (Horner); Chatham (Champion and Walker); Haslemere, Aylsham (T. Wood); Oxfordshire, and Chislehurst, Kent (Matthews); Luccombe Chine, April 1885 (Sharp, Gorham, and Fowler).

T. solutus, Er. Testaceous red, shining, with the head, breast, hind body, and a scutellary patch (usually not sharply defined) on elytra, black; head and thorax smooth and shining, almost impunctate, antennæ a little longer than head and thorax united, evidently thickened towards apex, testaceous, with base paler, penultimate joints longer than broad; elytra a third longer than thorax, rather finely and thickly punctured; hind body thickly and rather distinctly punctured, black, with margins of basal segments obscurely testaceous; legs testaceous. L. $3-3\frac{1}{3}$ mm.

In moss, dead leaves, &c., occasionally in marshy places; local; London district, not uncommon, Chatham, Darenth Wood, Barnes, Shirley, Caterham, Birch Wood, Mickleham, Esher, Tonbridge, &c.; Hastings; Glanvilles Wootton; Devonshire; Llangollen; Birmingham district; Northumberland district, very rare; Scotland, not common, Solway, Forth, and Clyde districts; Ireland, near Dublin, and Waterford (Power).

T. pallidus, Sharp (*T. solutus*, var., Cat. Heyden-Reitter-Weise). This species is somewhat closely related to the preceding, but is considerably smaller, and differs very much in colour, the thorax and elytra being straw-coloured, and the latter having the black triangular scutellary patch abrupt and well defined; the margins of the segments of hind body are more distinctly reddish testaceous, and the antennæ are rather darker towards apex: the absence of a dark lateral margin on elytra will at once separate it from *T. chrysomelinus* and *tersus*. L. $2\frac{2}{3}-3$ mm.

In moss, flood refuse, &c., especially in marshy places in early spring; Lee (Kent), Barnes, Wimbledon; Horning Fen, Norfolk; Cambridgeshire Fens, Wicken Fen, &c.

T. chrysomelinus, L. Very like *T. solutus* both in size, colour, and general appearance; but distinguished by having the side margins of the elytra blackish, and the antennæ darker towards apex, and not thickened; the anterior angles of thorax also are less pronounced and blunter; sometimes the disc of thorax and elytra is slightly dusky, and in immature specimens the whole upper surface of the body is testaceous. L. $3-3\frac{1}{2}$ mm.

In moss; abundant throughout the kingdom.

T. humerosus, Er. Smaller and rather more convex than the preceding, and of a generally darker colour; the second and third joints of the antennæ are a little shorter in proportion to the fourth; the elytra are more or less obscurely red with the region round scutellum, the base, and the sides darker, and the thorax also is of a darker red colour; the posterior tarsi also are a little longer. L. $2\frac{2}{3}$ mm.

In moss; generally distributed throughout England, and probably also in Scotland, although it has only been recorded from the Forth and Solway districts; Ireland, Armagh.

T. tersus, Er. About the size of *T. pallidus*, but easily distinguished from it by the dark lateral margins of elytra; a small rather broad species, shining testaceous red, with the disc of thorax often, and the scutellary region and sides of elytra always, darker; the head and thorax are almost smooth; antennæ as long as head and thorax united, scarcely thickened towards apex, brownish red with the three or four basal joints testaceous; elytra very little longer than thorax finely, sparingly, and obsoletely punctured; hind body shining black with apical margin of segments reddish, finely and sparingly punctured, more thickly on basal segments; legs testaceous. L. $2\frac{2}{3}$ mm.

In moss, &c.; not uncommon in the London district, &c.; Bewdley Forest; Scotland, local, Solway, Forth, and Clyde districts; it is probably widely distributed, but considerable confusion exists as regards the species, which is placed in a separate section by Rey (with two or three other species not found in Britain) on the ground that the anterior tarsi have the first joint evidently shorter than the second, instead of as long as, or longer than that joint, as in nearly all the other species.

T. hypnorum, F. Shining black, with the sides of thorax testaceous, and the elytra red with the scutellary region and sides black; antennæ obscure red, with the four or five first joints testaceous; legs testaceous with all the coxæ black: the structure and sculpture does not differ materially from that of *T. chrysomelinus* and the allied species, except that as a rule the elytra are a little shorter in proportion to the thorax, and the general form is a little broader in the middle, but in these points there is a little variation. L. $3\frac{1}{3}$ – $3\frac{2}{3}$ mm.

In moss; very common and generally distributed throughout the kingdom.

V. meridionalis, Fairm. This variety differs from the type in having the elytra dark on disc: in Dr. Sharp's collection there is a very curious form in which the elytra are testaceous red with a dark transverse band across middle and another along front part of suture, dividing the elytra into well-defined light portions somewhat as in *Lebia crux minor*; the thorax is occasionally almost entirely rufo-piceous with lighter margins.

T. pusillus, Grav. Considerably smaller, narrower, and more parallel-sided than the preceding, which it much resembles in colour, except that the elytra are more obscurely red; the thorax is only just

as broad as the base of the elytra, and not slightly broader as in *T. hypnorum* and other species, and the apical and basal margins of elytra are of equal width, or, if anything, the former is the widest; the hind body is less strongly narrowed to apex; legs testaceous, coxæ more or less dark. L. $2\frac{2}{3}$ mm.

In moss, cut grass, dead leaves, &c., especially in marshy places; not uncommon and generally distributed throughout the kingdom.

T. brunneus, F. A small, narrow, and depressed species, of a reddish colour, with the head, disc of thorax, breast, and base of segments of hind body pitch-black, and the scutellary region and sides of elytra dusky; head and thorax smooth; antennæ about as long as head and thorax united, reddish with base lighter, slightly thickened towards apex, with the two penultimate joints as broad as long or slightly transverse; thorax transverse, narrowed in front; elytra longer than thorax, finely, rather thickly, and somewhat rugosely punctured; hind body finely and rather thickly punctured, a little more sparingly behind; legs testaceous. L. $2\frac{1}{2}$ mm.

In haystack refuse, hotbeds, moss, &c.; common and generally distributed throughout the kingdom.

The small size, depressed form, and obscurely reddish appearance of this species will at once separate it from all the others.

T. transversalis, Grav. A very distinct species; black, or bluish-black, shining, with the mouth, thorax, except anterior portion, and apical third or quarter of elytra testaceous; the apical margins of segments of hind body are also obscurely reddish; head and thorax smooth or almost smooth; antennæ dusky with base pale; elytra a little longer than thorax, very finely and rather thickly punctured; hind body very finely and somewhat thickly punctured, punctuation obsolete on the posterior portion of each segment; legs reddish testaceous. L. $2\frac{2}{3}$ –3 mm.

In marshy places in moss—often in heathy districts in *Sphagnum*; also at roots of grass; local, but abundant where it occurs; Wimbledon, Chobham, Reigate, Merton (Surrey); Shirley Warren, Southampton; New Forest; Coleshill and Sutton Park, Birmingham; Chat Moss; Scarborough; Northumberland district, rare; Scotland, very local, Solway and Tay districts; Ireland, recorded from Armagh.

LAMPRINUS, Heer.

This genus contains some four or five species peculiar to the European fauna, which closely resemble *Tachyporus*, and by some authors are included under that genus; they appear, however, distinct by reason of their more robust form, shorter and strongly thickened antennæ, and by the stout and more or less compressed posterior tibiæ and tarsi.

L. saginatus, Grav. Head black, thorax and elytra testaceous-

red, hind body black, with extreme apical margin of segments reddish; head and thorax almost impunctate; antennæ rather short, strongly and gradually thickened, and rather strongly compressed towards apex, reddish testaceous or ferruginous with the base and apical joint paler, penultimate joints strongly transverse viewed from the side; thorax strongly narrowed in front, as broad behind as elytra; elytra transverse, about as long as thorax, very finely and rather thickly punctured; hind body strongly setose at sides and apex, finely and rather thickly punctured; legs reddish testaceous with the intermediate and posterior coxæ darker. L. 4 mm.

Male with the seventh dorsal segment of hind body entire, rounded at apex, seventh ventral segment emarginate, disclosing segment of armature; anterior tarsi feebly dilated; female with seventh dorsal segment furnished with four long rather sharp lobes of about equal length, seventh ventral segment somewhat rounded and thickly ciliate at apex, anterior tarsi almost simple.

At roots of grass and in moss in damp places, especially on heaths; it has occurred in ants' nests in France; rare; Shirley, Wimbledon, Reigate, Chobham, Mickleham, Esher, West Wickham; Hastings; Salisbury; Dean Forest; Eggington, near Repton, Burton-on-Trent; Scarborough; banks of Irthing, Cumberland; Northumberland district, very rare "sea-coast near Whitley;" Scotland, Solway district, very rare; found on two or three occasions in flood refuse on the banks of the Nith and Scar at Thornhill, Dumfries.

CILEA, Duval. (*Leucoparyphus*, Kraatz.)

This genus comes very near to *Tachyporus*, and is chiefly separated on differences in the relative length of the joints of the maxillary palpi; only a few species of the genus in its strict sense are known, but these are widely distributed, occurring in Europe, Madagascar, Caffraria, Ceylon, and Central America. M. Fauvel has lately described a large number of species from Australia and New Guinea, but, as he merges *Cilea* in *Erchomus*, it appears doubtful whether they are true members of our genus, which may be retained as distinct, by reason of the structure of the palpi, antennæ, and tarsi, the less convex elytra, and certain differences in the skeleton of the underside.

It appears to be doubtful whether the name of *Leucoparyphus* ought to have the priority over *Cilea* or not.

C. silphoides, L. Smooth and shining, rather broad in front and strongly narrowed behind, deep black or pitchy black, with the sides of thorax, the suture, and apex of elytra, and a more or less interrupted band near margin of the same yellow testaceous; head and thorax almost impunctate, antennæ a little longer than head and thorax united, hardly thickened, ferruginous brown with base lighter, penultimate joints not transverse; thorax transverse, narrowed in front, hardly as broad behind as elytra; elytra transverse, a little longer than thorax,

very finely and closely punctured; hind body with short and rather thick pubescence, strongly setose at sides, finely and thickly punctured; legs testaceous with coxæ more or less dark. L. 3 mm.

The sexual characters are very peculiar, but are hard to describe: in the male the seventh dorsal segment of hind body is cleft into six lobes, the intermediate ones being more slender and sharper, and projecting beyond the others, and the lateral ones being short, blunt, and indistinct, sixth and seventh ventral segments emarginate and excised, with a lateral lobe on each side; in the female the seventh dorsal segment is furnished with six slender lobes more or less spiniform, the intermediate projecting beyond the others, seventh ventral segment also with six lobes, the two central ones being somewhat differently shaped from the corresponding upper lobes.

In hotbeds and dung-heaps; rather common and generally distributed as far north as the Forth district of Scotland; Ireland, near Belfast and Dublin.

TACHINUS, Gravenhorst.

This genus contains about seventy species, which are almost entirely confined to the temperate and northern portions of both the Old and New Worlds; upwards of half the species are found in Europe, and a large number occur in North America: Dr. Sharp has lately described four species from Central America, all, however, from high altitudes, up to 10,000 feet; one reputed species has also been described from Chili; they occur in dung, putrid fungi, dead leaves, moss, at sap, &c.; there are thirteen or fourteen British species, two or three of which are extremely common, but some of them are among our rarest insects: in all probability the rare and curious *T. elongatus* is rightly separated and made a type of a distinct genus by Thomson, as it differs from the rest in several important particulars; it appears, however, to be retained for the present in its old position by most authorities. The sexual characters of the species of *Tachinus* are very peculiar, but are hard to describe; they are fully figured by Mulsant and Rey, Brévipennes, Tachyporiens, Plate iii; the anterior tarsi are, as a rule, more or less dilated in the male.

The larva of *Tachinus rufipes* is described and figured by Schiödte (De Metamorphosi Eleutheratorum, vii. p. 553, fig. xix. 1-9): it is long and almost linear, very slightly narrowed in front and behind, the metathoracic segment being the widest, and the last segment of abdomen (which is about the breadth of the head) the narrowest; the head is somewhat produced before antennæ which are short, and is considerably narrower than the prothorax; the prothorax is about as broad as long, nearly as long as the meso- and meta-thorax; all the segments, with the exception of the last, are rather strongly rounded both in front and behind, so that the inter-segments are very evident; the last segment is subquadrate, and bears a short thick anal appendage terminated by four warty prominences, and on each side of the anal appendage two long jointed cerci, which are furnished with strong setæ; these setæ are also strong and conspicuous on all the segments of the body; the colour of the larva is white with all the scuta, which are large, fuscous, so that it really seems to

be almost entirely of a fuscous colour ; the antennæ, legs, and cerci are yellowish, and all the setæ black.

- I. Last joint of maxillary palpi elongate, plainly longer than penultimate ; fourth joint of antennæ plainly shorter than fifth ; hind body narrowed from base to apex (*Tachinus*, i. sp.).
 - i. Antennæ entirely black, at most base of two or three basal joints lighter ; elytra ferruginous brown, sometimes darker on disc ; sides of thorax sometimes lighter, sometimes concolorous with disc. T. FLAVIPES, F.
 - ii. Antennæ black, or ferruginous red, with base lighter.
 - 1. Length $6\frac{1}{2}$ -7 mm. ; elytra bright red with apical margin, and sometimes suture, darker . . . T. RUFIPENNIS, Gyll.
 - 2. Length 5-6 mm. ; elytra shagreened between punctures, duller.
 - A. Elytra ferruginous red, or black with base more or less reddish testaceous.
 - a. Sides of thorax rather broadly lighter.
 - a*. Elytra nearly twice as long as thorax ; anterior margin of thorax often (but not always) lighter than disc.
 - a†. Penultimate joints of antennæ longer ; elytra ferruginous red, more or less infusate T. HUMERALIS, Grav.
 - b†. Penultimate joints of antennæ shorter ; elytra always dark with base only reddish T. PROXIMUS, Kr.
 - b*. Elytra one and a half or one and one-third times as long as thorax.
 - a†. Elytra narrower plainly longer than broad, with apical margin and a spot at shoulder reddish yellow T. PALLIPES, Grav.
(*frigidus*, Er. ?)
 - b†. Elytra broader, subquadrate, with apical margin often concolorous with disc, and a rather large transverse space at shoulder more or less obscurely reddish yellow T. SCAPULARIS, Steph.
 - b. Sides of thorax not, or obscurely lighter.
 - a*. Antennæ entirely ferruginous red with base lighter ; penultimate joints about as long as broad T. BIPUSTULATUS, F.
 - b*. Antennæ dark with base testaceous ; penultimate joints plainly longer than broad T. RUFIPES, De G.
 - B. Elytra black with a large broad bright yellow band stretching from apex near shoulders to beyond middle T. SUBTERRANEUS, L.
 - 3. Length 3-4 mm. ; elytra not shagreened between punctures, more shining.
 - A. Elytra and thorax, except margins, black.
 - a. Thorax as broad as elytra with margins distinctly lighter T. MARGINELLUS, F.
 - b. Thorax broader than elytra with margins obscurely lighter T. LATICOLLIS, Grav.
 - B. Elytra and thorax ferruginous red T. COLLARIS, Grav.

II. Last joint of maxillary palpi oblong, not or hardly longer than penultimate; fourth joint of antennæ not shorter than fifth; hind body parallel-sided; colour entirely deep black; length 7-10 mm. (Sub-gen.

Drymoporus, Thomson) T. *ELONGATUS*, Gyll.

T. flavipes, F. Black or pitch-black, shining, with the elytra ferruginous brown, more or less darker on disc, not very convex, almost smooth; head finely and thickly punctured, mouth concolorous, antennæ as long as head and thorax together, entirely black, with base of first joints often reddish, penultimate joints hardly transverse; thorax transverse, hardly as broad behind as elytra, very finely and thickly punctured, entirely black or occasionally with lateral and basal margins testaceous; scutellum with fine indistinct punctures; elytra half as long again as thorax; hind body short, with a very long seta on sides of segments 3-7; legs ferruginous brown or reddish, femora sometimes darker. L. 5 mm.

Male with the seventh dorsal segment of hind body furnished with four blunt lobes, the intermediate pair projecting beyond the others, ventral segment broadly emarginate; female with the seventh dorsal segment furnished with three lobes of equal length, long, and sharp, the lateral spiniform, the central one forming a broad plate gradually and sharply narrowed to apex.

In dung, decaying wood-frass, fungi, &c.; usually in wooded and hilly districts; not common; Bishops Wood (G. R. Waterhouse), in the wet sappy sawdust round the stumps of felled oaks; Hampstead and Croydon (Shepherd); Wimbledon (Power); Glanvilles Wootton; Devonshire, very rare; Sutton Park, Birmingham; Manchester district; Northumberland district, banks of Irthing, very rare; Scotland, "in dung, rare," Tweed, Solway, Tay, and Dee districts.

T. rufipennis, Gyll. A large and conspicuous species that cannot be mistaken for any other; shining black with the elytra bright red, the apical margin and suture being more or less infusate; head finely and thickly punctured, black, with mouth red, mandibles darker; antennæ as long as head and thorax united, with penultimate joints a little longer in male than in female; thorax transverse, considerably narrowed in front, with sides moderately rounded, very finely punctured; scutellum sparingly punctured, pitchy red; elytra a third as long again as thorax, rather strongly and thickly punctured; hind body strongly narrowed behind, almost as strongly punctured as elytra; legs pitchy or brownish red, with tarsi lighter. L. $6\frac{1}{2}$ -7 mm.

Seventh dorsal segment of hind body in male with a central lobe furnished with obtuse short teeth, the lateral being blunter than the others, in female with four narrow spiniform lobes or projections, of which the lateral pair are much the longest, seventh ventral segment in female with large narrow projecting lobes, which are visible from above.

In dung, vegetable refuse, dead birds, &c.; also occasionally under bark, but this is very probably accidental; very rare; North Devon, Barnstaple (Saunders); Chiltern

Hills (Matthews); Kettlewell, Yorkshire (in dead grouse); Scotland, very rare, Tay and Moray districts.

T. humeralis, Grav. Shining black with the margins of thorax, and the elytra, ferruginous, the latter being often darker on disc; head finely and thickly punctured, black with mouth pitchy and palpi reddish; antennæ a little longer than head and thorax united, with penultimate joints plainly longer than broad; thorax strongly transverse, moderately rounded at sides, narrowed considerably in front, and slightly before base, with posterior angles obtuse and rounded, very finely and thickly punctured; scutellum pitchy brown or reddish, punctured; elytra nearly twice as long as thorax, very finely and thickly punctured; hind body rather strongly narrowed behind, with a long seta on each side of the fifth and sixth segments, finely and thickly punctured; legs red. L. $6-6\frac{1}{2}$ mm.

Male with the seventh dorsal segment of hind body furnished with four blunt lobes, the intermediate pair projecting considerably beyond the others, sixth ventral segment broadly emarginate, seventh strongly excised and bifid; female with seventh dorsal segment furnished with three lobes, the intermediate forming a broad plate narrowed to a blunt point at apex, and the lateral narrow and bluntly spiniform.

In dung, putrid fungi, dead leaves, haystack refuse, &c.; common and generally distributed.

T. proximus, Kr. (*T. humeralis*, var. Er. and auct.). Very like the preceding, but distinguished by its rather smaller size and slightly shorter elytra, and by the latter being always dark on disc, even in immature specimens; the antennæ have the penultimate joints a little shorter; the lobes of the hind body in female are much longer, and the central one, instead of being short and somewhat blunt, is long and prolonged at apex in an elongate point. L. $5\frac{1}{2}-6$ mm.

In sheep's droppings, and also in fungi; as a rule in high and northern districts; Sutton Park, Birmingham (Blatch); Dunham Park, Manchester (Chappell); Northumberland district; Scotland, local, Highlands, Clyde, Tay, Dee, and Moray districts.

T. pallipes, Grav. Rather smaller than either of the two preceding, and darker coloured; black with sides of thorax and apical margin and a humeral patch on elytra reddish testaceous; it is distinguished from the preceding species by the much shorter elytra; from the succeeding species it may be separated by having the sides of the thorax rather broadly testaceous; it very closely resembles the common *T. rufipes*, but may be distinguished from it, apart from the colour of the thorax, by its shorter and rather stouter antennæ and the more pronounced yellow patch at the shoulders of elytra. L. 5 mm.

Male with seventh dorsal segment of hind body furnished with four teeth, the intermediate projecting beyond the others which are blunter, sixth ventral segment emarginate, seventh deeply excised; female with seventh dorsal segment with four spiniform projections, the intermediate

ones very sharp and slender, and scarcely projecting beyond the lateral ones.

In refuse, &c.; not common; Northumberland district, rare, Gosforth and Bothal, in fungi; Scotland, local, in vegetable refuse, Solway, Forth, Tay, Dee, and Moray districts; it has been recorded once or twice from the more southern parts of England, but it is so closely allied to other commoner species that it is possible there may have been some mistake; it occurs in France, but is confined to alpine and sub-alpine regions.

T. frigidus, Er. A single specimen of a *Tachinus*, taken by Dr. Sharp at Strathglass, Inverness-shire, was doubtfully referred by him to the *T. frigidus* of Erichson and Kraatz; the specimen is a female, and differs from the female of *T. pallipes* in the seventh dorsal segment of hind body having three lobes instead of four, and from that of *T. rufipes* in the central lobe being longer and more pronounced; the testaceous sides of the thorax also separate it from *T. rufipes*: the specimen appears to be intermediate between these two species, and to form a transition from one to the other; in the catalogue of Heyden, Reitter, and Weise *T. frigidus* is given as a synonym of *T. pallipes*.

T. scapularis, Steph. (*palliolatus*, Kr.). Rather broad, shining black, with the margins of thorax and a broad basal patch at shoulder of elytra more or less obscurely testaceous or reddish; punctuation very fine and rather thick; the species closely resembles *T. pallipes*, but is easily distinguished by its broader and squarer and considerably shorter elytra, which have the base more distinctly lighter, and the apex as a rule concolorous; the sexual characters are much the same as in that species, but the central lobes of the seventh segment of the male are stronger and sharper, and the sixth segment in both the male and female is more plainly sinuate; immature specimens occur, in which the elytra are for the most part reddish testaceous with the base more or less darkened, and the apical margin of the segments of the hind body is more or less testaceous. L. $5\frac{1}{2}$ mm.

In dung-heaps, carcasses, &c.; rare; Mickleham, Shirley, Dulwich, Kingston; Devonshire; Robins Wood, Repton (W. Garneys).

T. bipustulatus, F. Shining black, with the base of elytra more or less distinctly reddish testaceous, apex often concolorous, margins of thorax scarcely lighter (except in immature specimens); it may be distinguished from all the other allied species by its entirely red antennæ, which are lighter at base, and from *T. scapularis* and *pallipes* by having the penultimate joints of the antennæ shorter; the hind body has the apex of the segments plainly reddish-testaceous, and is very distinctly, although finely punctured; in the male the seventh segment of hind body is furnished with four distinct blunt lobes, the central projecting beyond the lateral ones, the sixth ventral segment is broadly impressed in middle and emarginate at apex, and the seventh ventral segment is deeply excised; in the female the seventh dorsal segment is furnished with

four lobes which are long, sharp, and spiniform, and of about equal length; in the male, however, of this, and apparently of other species, the length of the lobes somewhat varies, and the two central lobes appear sometimes almost to coalesce, and end in two blunt teeth which do not project beyond the lateral lobes; the length of the female lobes also is slightly variable. L. 5 mm.

At the exuding sap of *Cossus*-infected trees, also under bark; rare; Charlton and Catford (Kent), Croydon, Putney, Forest Hill, Shirley, Belvedere, Addington, &c.; Robins Wood, Repton (W. Garneys); Scotland, very doubtful, recorded in Murray's catalogue as occurring at "Raehills, near Edinburgh; Kinross-shire;" but Dr. Sharp is of opinion that another species is probably referred to; the habitat of the insect is peculiar, and will in great measure serve to distinguish it.

T. rufipes, L. Shining black or pitchy black with an obscure patch near shoulder of elytra, and the apical margin of the same reddish testaceous; head very finely and thickly punctured, antennæ a little longer than head and thorax united (longer, more slender, and with the penultimate joints less short than in *T. scapularis* and *T. pallipes*), joints 5-10 evidently longer than broad; thorax transverse, narrowed in front, very finely and thickly punctured, a little broader at base than elytra, with sides rather strongly rounded, black, with side margins concolorous or scarcely visibly lighter, basal margin occasionally very narrowly testaceous; scutellum black, very finely punctured; elytra about a third longer than thorax, very finely and thickly punctured; hind body rather short, distinctly punctured, with a long seta at each side of the two last segments; legs red. L. $5\frac{1}{2}$ mm.

Male with the seventh dorsal segment of hind body furnished with four lobes, of which the intermediate pair project beyond the others, sixth ventral segment broadly impressed in middle and emarginate on apical border, seventh deeply excised; female with seventh dorsal segment of hind body with a large central lobe which is strongly narrowed and pointed at apex, and usually reaches slightly beyond the lateral lobes, which are two in number and are strong and spiniform; the seventh ventral segment is also furnished with blunt lobes (as in some of the other species), which are visible from above, and must not be confounded with the dorsal lobes.

In dung, moss, &c.; abundant throughout the kingdom. A variety occurs rather rarely in which the elytra are entirely ferruginous or dusky brownish-testaceous: I have taken it near Burton-on-Trent, and Dr. Sharp has found it at Malvern and in Scotland. The dark shining black thorax with concolorous sides will easily distinguish this very common species.

T. subterraneus, L. Easily distinguished from all the other species by its colour, which is shining black with a large, broad, clearly defined orange or reddish testaceous patch, reaching from apex near shoulders to beyond middle; the sides of the thorax and apex of segments of hind body are often reddish-yellow; head and thorax very finely punctured; antennæ as long as head and thorax united, dark, with the

first four joints pitchy or reddish, penultimate joints not transverse; elytra twice as long as thorax, finely and thickly punctured, with the reticulation between the punctures distinct; hind body rather strongly punctured, much narrowed behind; legs dark pitchy red. L. $5\frac{1}{2}$ –6 mm.

Male with the seventh dorsal segment of hind body with four blunt lobes, the intermediate ones projecting beyond the others, sixth ventral segment broadly and rather deeply excavate and emarginate and furnished on each side with three-toothed lobes, seventh segment deeply excised with a long recurved lobe on each side, very conspicuous from above, and unless carefully examined, very likely to be mistaken for lobes proceeding from the dorsal segment; female with seventh dorsal segment furnished with four lobes, the central short, the lateral very much longer and stronger.

In haystack refuse, dung-heaps, &c.; common and generally distributed throughout the kingdom.

V. bicolor, Grav. Resembles the type, but has the sides of thorax broadly testaceous, and the elytra entirely testaceous with the suture and apical margin black; it appears to occur with the ordinary form.

T. marginellus, F. This and the two succeeding species are at once distinguished from all the others by their much smaller size: *T. collaris* is easily known by the reddish thorax and elytra; *T. marginellus* and *laticollis* closely resemble in miniature *T. pallipes* and *rufipes*; *T. marginellus* is black, or pitch-black, shining, with the base and sides of thorax, and the apex of elytra, and a band on the same near side margins reaching from shoulder to apex, testaceous; the intra-marginal band is always obscure in mature specimens; the punctuation of the upper surface is fine and close; the antennæ are rather longer than the head and thorax united, black with base reddish, penultimate joints not transverse; the thorax is not broader than elytra; the elytra are half as long again as thorax, finely and thickly punctured, and not shagreened between the punctures; hind body short, with a long seta on each side of the two last segments; legs lighter or darker red. L. $3\frac{1}{2}$ –4 mm.

Male with the seventh dorsal segment of hind body furnished with four teeth, the intermediate rather broader and more prolonged than the lateral ones, sixth ventral segment sharply emarginate with a strong impression before excision, and with the lobes of the excision truncate, and pectinate, seventh segment deeply excised, with long, triangular, sharp, somewhat recurved lobes; female with the seventh dorsal segment furnished with four spiniform lobes, the intermediate being a little shorter.

In dung, decaying fungi, &c.; common and generally distributed throughout the kingdom.

T. laticollis, Grav. Very like the preceding, but rather broader, with the base of thorax a little wider than base of elytra; the colour of the sides of thorax, and apex and sides of elytra, is more obscure and less pronounced; the elytra also are a little shorter and more convex; the

intermediate lobes of the seventh segment of hind body are more slender and more widely separated in both sexes, and the emargination of the seventh ventral segment of male is circular instead of being angular. L. $3\frac{1}{2}$ –4 mm.

In dung, moss, decaying fungi, &c.; local and not common in England; Purley Downs, Bishops Wood, Eltham, Wimbledon, Tonbridge; Hastings; Lee Valley, North Devon (Power); Sutton Park, Birmingham; Manchester; Northumberland district; Scotland, common, Solway, Tweed, Forth, Tay, and Dee districts; Ireland, Armagh.

T. collaris, Grav. Pitch-black with the thorax and elytra reddish, with disc of each often more or less darkened; punctuation fine and close except of elytra, which is rather strong, although close; head dark, with palpi pitchy; antennæ a little longer than head and thorax united, red, sometimes a little darker towards apex, penultimate joints not transverse; thorax transverse, narrowed in front, a little broader behind than elytra; elytra subquadrate, not very much longer than thorax; hind body short, strongly narrowed behind, black, with apex of segments pitchy red, without long setæ at sides of segments; legs red or reddish testaceous. L. 3 – $3\frac{1}{2}$ mm.

Male with the seventh dorsal segment of hind body furnished with four rather short, blunt teeth, the central pair prolonged beyond the others, sixth ventral segment angularly emarginate in middle of apical border, seventh strongly excised, with the lobes of the excision triangular; female with the seventh dorsal segment furnished with four long, narrow teeth of about equal length, seventh ventral segment with blunt teeth or lobes.

Under stones and old bark, in moss, fungi, &c.; local; rather common in flood refuse at Repton, Burton-on-Trent, but I know of no locality further south; Lincoln, common in flood refuse; York; Manchester; Northumberland district; Scotland, common in Lowland districts throughout the greater part of the country.

T. elongatus, Gyll. (*intricatus*, Sahlb., *Drymoporus elongatus*, Thoms.). A large and conspicuous species, entirely deep black; head and thorax very finely shagreened, and very finely and rather sparingly punctured, appearing almost smooth; antennæ as long as head and thorax united, entirely ferruginous, or dusky with base and apex lighter, penultimate joints as long as broad, or slightly transverse; thorax narrowed in front, slightly broader at base than elytra; elytra about a third longer than thorax, rather strongly punctured in irregular rows; hind body long, parallel-sided until near apex, with punctuation more evident at sides than on disc, margins of segments sometimes pitchy; legs lighter or darker pitchy red. L. 7–10 mm.

Male with the seventh dorsal segment of hind body furnished with four blunt teeth, the intermediate pair prolonged beyond the others, sixth ventral segment broadly emarginate with the lateral lobes somewhat angular, seventh segment deeply excised with the lateral lobes strong, elongate, and acuminate and curved inwards at apex; seventh

dorsal segment in female with four long lobes, the interior pair more slender and sharper.

In dung, moss, &c.; Sheerness, Shirley, Leith Hill, West Wickham, Reigate, Addington; Seal Wood, Staffordshire (J. T. Harris); Lincoln; Northumberland district, banks of Wooler Water and Irthing, Gibside, &c.; Scotland, Lowlands and Highlands, rare, but widely distributed as far north as the Moray district; Ireland, Chapelizod Glen, near Dublin. Mr. Gorham has lately (June, 1887) taken a specimen in the New Forest with reddish brown elytra.

MEGACRONUS, Thomson.

There is considerable confusion with regard to this genus, *Bryoporus*, *Bolitobius*, and *Mycetoporus*; Dr. Sharp (Biol. Cent. Am. Staphylinidæ, p. 317) considers that the union of *Bryoporus* with the *Megacronus* division of *Bolitobius*, while the other two genera are treated as distinct, offers a satisfactory solution of the difficulty; it seems, however, preferable to keep *Bryoporus* distinct from *Megacronus*, the maxillary palpi in the former having the last joint evidently narrower at base than the apex of the penultimate, whereas in the latter they are shorter and thicker, and have the last joint as broad at base as the apex of penultimate; in some points the relation is closer between *Bryoporus* and *Bolitobius*; there are about a dozen known species of *Megacronus*, which have much the same distribution as *Bolitobius*; there are three British species, and one which is doubtfully indigenous; they are large, conspicuous, and brightly coloured insects; all our species belong to the sub-genus *Bryocharis*, Lac., which is distinguished from *Megacronus* proper by having the first joint of the intermediate and posterior tibiæ spinose, as well as pubescent, beneath.

- I. Elytra with three rows of punctures, smooth and glabrous between the punctures; thorax black.
 - i. Length 7-8 mm.; last joint of antennæ bright yellow M. CINGULATUS, Mann.
 - ii. Length 6-6½ mm.; last joint of antennæ ferruginous brown or dusky-yellowish M. ANALIS, Payk.
- II. Elytra strongly punctured, and evidently pubescent.
 - i. Elytra rather thickly punctured, longer than thorax. . . M. INCLINANS, Grav.
 - ii. Elytra sparingly punctured, as long as thorax. . . M. FORMOSUS, Grav.

M. cingulatus, Mann. Shining black, with the elytra and last two or three segments of abdomen red, the colouring being very bright; head subovate, mouth parts testaceous; antennæ black with the base, and at least the whole apical joint bright yellow, longer than the head and thorax united; penultimate joints gradually shorter, the tenth being transverse, last joint oval and a little longer than the penultimate in female, sub-cylindrical, and longer than the two preceding in male; thorax strongly narrowed in front, with posterior angles very obtuse; elytra subquadrate, about a quarter longer than thorax, smooth, with three longitudinal rows of setigerous punctures set rather far apart, and often not conspicuous; hind body long, narrowed gradually from base to apex, covered with

long, sparing, greyish pubescence, strongly and sparingly punctured, with basal segments and apex of the others smoother; legs reddish testaceous with coxæ blackish. L. 7–8 mm.

Male with the sixth ventral segment with a small, smooth, triangular impression, seventh longitudinally furrowed in middle, and angularly prolonged in centre of apical margin, first three joints of anterior tarsi strongly dilated.

In moss, dead leaves, &c.; also by sweeping; rare, but rather widely distributed; Caterham, Bexley (Kent), Strood, Weybridge, Bishops Wood, Chobham, Dulwich, Hampstead; The Holt (Farnham); Hastings; Glanvilles Wootton; Barnstaple; Sutton Park, Birmingham; Cannock Chase; Buddon Wood (Leicestershire); Repton; Sherwood Forest; Scarborough; Liverpool; Northumberland district, rare, Gosforth Woods and near Gilsland; Scotland, rare, Forth, Solway, Tay, and Clyde districts; Ireland, Rathkurby.

M. analis, F. (*castaneus*, Steph.). Resembles the preceding very closely in form and colour, but is smaller and the red colour is not quite so bright; the last joint of the antennæ is usually brownish or dusky yellow, and is always darker than in *M. cingulatus*, and the fourth and fifth joints are shorter; the punctures are usually more numerous in the sutural and marginal series of elytra; the three basal segments of the hind body (which are slightly impressed at base in the preceding species) are quite even; sometimes it is rather difficult to distinguish certain examples by the description, but any collector who takes a specimen of *M. cingulatus* cannot fail to distinguish it at first sight from *M. analis*. L. 6–6½ mm.

Male with sixth ventral segment slightly sinuate in middle of apical margin, seventh furrowed and prolonged, first three joints of anterior tarsi moderately dilated.

In moss, dead leaves, &c.; common and generally distributed throughout the southern and midland parts of England, and generally distributed in the north; Scotland, not common, but widely distributed.

M. inclinans, Grav. About the size of ordinary examples of *M. cingulatus* or slightly smaller, but at once distinguished from either of the two preceding by its colour, which is testaceous red with the head, breast, and hind body black, the apex of the latter, as well as the hind margin of apical segments being reddish; in form it much resembles the preceding; the elytra are about a third longer than thorax, with distinct, but not close, pubescence, and strongly and rather thickly punctured; the hind body is strongly and sparingly punctured; the antennæ and legs are reddish testaceous, the former being usually dusky in the middle. L. 6½–7½ mm.

Male with the seventh ventral segment narrowly incised at apex; anterior tarsi with two joints strongly dilated, intermediate tarsi with first joint dilated beneath, and curved, intermediate tibiæ triangularly thickened towards base with strong terminal spines.

In moss, dead leaves, under faggots, &c.; occasionally in bottoms of haystacks; rare; Reigate, Coombe Wood, Birch Wood, Bishops Wood (Highgate), Dulwich,

Sevenoaks, Hainault Forest; Devonshire; Bewdley Forest; Brethby Wood, near Repton; Scarborough; Eastham, near Liverpool; Drinkwater Park and other localities, Manchester; Scotland, very rare, Tweed, Forth, and Tay districts.

M. formosus, Grav. This species differs from the preceding in being smaller and narrower, and with the elytra somewhat shorter and less closely punctured; the insect is winged, whereas *M. inclinans* is apterous; in the male the seventh ventral segment is subtruncate on apical margin with a small central angular emargination which is partly filled with membrane. L. $5\frac{1}{2}$ –6 mm.

Very rare and somewhat doubtful as British; Stephens (Ill. Mand. v. 168) says, "Taken near Swansea, and I believe within the metropolitan district," and Bold (Catalogue of Insects of Northumberland and Durham, p. 34) has the record, "Rare. One specimen taken in a quarry near Fugar Bar, Mr. J. Hardy, November;" he appears, however, to be somewhat doubtful of the species; no other records are known, and the species does not occur in France or the Netherlands.

BRYOPORUS, Kraatz.

Of this genus there are about as many species at present known as in the preceding, and their distribution is similar; the three British species are among our rarest indigenous insects.

I. Thorax smooth or almost smooth; size smaller.

i. Elytra rugosely striate or punctate between the series; fourth joint of antennæ oblong. **B. RUGIPENNIS**, *Pand.*

ii. Elytra smooth between the series; colour lighter; fourth joint of antennæ not longer than broad **B. CASTANEUS**, *Hardy.*

II. Thorax very finely and rather thickly punctured; size larger

. **B. CERNUUS**, *Grav.*

B. rugipennis, *Pand.* Fusiform, not convex, shining black, with the thorax and elytra dark red, the former usually darker on disc, and the apical margin of the segments of hind body reddish testaceous; head short oval, almost smooth, shining black, with mouth parts testaceous; antennæ as long as head and thorax united, somewhat thickened towards apex, dark, with the first two or three joints reddish testaceous, penultimate joints plainly transverse; thorax transverse, strongly narrowed in front, with posterior angles rounded; elytra evidently longer than thorax, with three longitudinal series of rather large setigerous punctures on each, the space between being more or less distinctly rugosely striate or punctate, the marginal series consisting of 6–8 punctures, and the other two of 4–6; hind body somewhat oblong, not strongly narrowed behind, very sparingly pubescent, and rather strongly and diffusely punctured, with apical portion of segments smooth; legs reddish testaceous, with coxæ, and sometimes base of posterior femora, darker. L. 4 mm.

The sexual differences are very slight.

In moss, &c., in mountainous districts; very rare; Scotland, Tay, Dee, and Moray districts (Braemar, Aviemore, Rannoch (on Grayvel), &c.); on the Continent it has been found on the Alps, Pyrenees, Mount Pilatus (Switzerland), &c.

B. castaneus, Hardy and Bold (*Hardyi*, Crotch). This species differs from the preceding in its brighter red colour, and shorter and thicker antennæ, of which the fourth joint is evidently shorter and thicker, and the following are more strongly transverse; the chief distinction, however, lies in the fact that the elytra have the spaces between the series of punctures smooth and not rugosely striate. L. $3\frac{1}{2}$ mm.

In moss, boleti, &c., in mountainous districts; very rare; Northumberland district, one specimen taken at Long Benton (Hardy and Bold); neighbourhood of Hartlepool, several specimens (J. Gardner); Scotland, Tweed district, "Girrick, R. Hislop;" on the Continent it occurs in summer on the High Pyrenees.

B. cernuus, Grav. This species is larger than either of the preceding; it is of a shining black colour, with the elytra and the apical margins of the segments of hind body red; head short oval, black, with mouth organs testaceous; antennæ as long as head and thorax united, feebly thickened towards apex, dark, with the three first joints testaceous, with the penultimate joints subquadrate in the male and slightly transverse in female; thorax narrowed in front, with posterior angles obtuse and rounded, very finely and thickly, but irregularly, punctured; elytra a third longer than thorax, smooth, with three longitudinal series of 5–10 punctures, and two more or less obscure series between them each consisting of 4–6 punctures; hind body clothed with rather long and sparing pubescence, strongly and diffusely punctured; legs reddish testaceous, with posterior coxæ dark. L. $4\frac{1}{2}$ mm.

In moss, &c.; very rare; recorded by Stephens as "found near London and in the New Forest;" also mentioned by Haliday as from near Belfast. I know of no recent captures; it occurs in several parts of France in both forest and mountainous localities, under moss, refuse, &c.

BOLITOBIUS, Stephens.

This genus comprises at present about fifty or sixty species, which are chiefly found in the northern and north temperate regions of the northern hemisphere; species, however, have been recorded from Central America, Rio de Janeiro, the Antilles, and Ceylon; there are four British species, one of which is a very distinct and conspicuous insect, but the other three are somewhat closely allied, and require a little care to distinguish them; they live in fungi, and are, with the exception of *B. exoletus*, very common; this latter species is rather local.

- I. Head very long, plainly longer than broad; elytra black with apical margin and a clearly defined lunulate patch at base, testaceous **B. LUNULATUS**, L. (*atricapillus*, F.).
- II. Head hardly longer than broad; elytra testaceous with darker markings.
 - i. Penultimate joints of antennæ not transverse; size larger; dorsal series of elytra consisting of 8–12 punctures.
 - 1. Base of thorax very finely bordered; elytra testaceous, with a patch at scutellum and at apical external angles black **B. TRINOTATUS**, Er.

2. Base of thorax not bordered; elytra testaceous, with
a patch at apical external angles only black . . . *B. EXOLETUS*, *Er.*
ii. Penultimate joints of antennæ moderately transverse;
size smaller; dorsal series of elytra consisting of only 3-6
punctures *B. PYGMEUS*, *F.*

B. lunulatus, L. (*atricapillus*, F.). Elongate and fusiform, shining testaceous red, with the head and chest black, and the elytra and sixth and seventh segments of the hind body also black except the apical margin and a large lunulate basal spot on each of the former, and the apical portion of the sixth segment of hind body, which are light testaceous; head long, black, with mouth parts testaceous; antennæ about as long as head and thorax united, black, with the first four joints and the apical joint yellow testaceous, penultimate joints about as broad as long; thorax impunctate, shining, strongly narrowed in front; elytra a little longer than thorax, smooth, with three series of large punctures (6-8 in each); hind body with long and sparse pubescence, rather strongly, but very diffusely punctured, with the basal segments almost smooth; legs clear testaceous, with intermediate and posterior coxæ black, lighter at apex. L. 5-5½ mm.

Male with the seventh ventral segment of hind body smooth in the centre, rather thickly punctured at sides, female with the same segment very sparingly and uniformly punctured.

In fungi; common and generally distributed throughout the kingdom.

B. trinotatus, *Er.* (*trimaculatus*, Lac.). Testaceous, with the head, breast, scutellary region of elytra and a patch at apical external angles black, disc of thorax often more or less infusate; hind body reddish or fuscous red, with the base of the fifth segment more or less broadly darker; head much shorter than in the preceding species, black with mouth organs testaceous; antennæ as long as head and thorax united, brownish, or ferruginous with the four or five basal joints lighter, penultimate joints plainly longer than broad; thorax not so strongly narrowed in front as in the preceding species, base finely bordered; elytra considerably longer than thorax, smooth, with three longitudinal series of large setigerous punctures on each, consisting of 8-12 punctures; hind body short, strongly narrowed behind, rather strongly and very sparingly punctured, basal segments nearly smooth; legs testaceous. L. 4½-5 mm.

Male with the seventh ventral segment of hind body broadly impressed longitudinally, with a somewhat obsolete keel before impression.

In fungi; common and generally distributed throughout the kingdom.

B. exoletus, *Er.* (*angularis*, Steph.). Very like the preceding, but distinguished by its small size, narrower form, and rather shorter head, and by the absence of the scutellary dark patch on elytra; the colour of the hind body is, as a rule, lighter, and the apex is rather sharply darker; the male has the sixth ventral segment of hind body depressed and smoother towards apex, the apex being slightly emarginate; the

colour of the elytra must not be altogether relied on, as specimens of *B. trinotatus* occur in which the scutellary patch is obsolete or wanting. L. $3\frac{1}{2}$ –4 mm.

In fungi; local; London district, not uncommon; Hastings and other southern localities; Midland counties, generally distributed; Manchester; Northumberland district; Scotland, scarce, Solway, Tweed, Forth, and Dee districts.

B. pygmæus, F. (*distigma*, Fairm., v. *biguttatus*, Steph.). Very like the preceding, but smaller, and distinguished from both it and *B. trinotatus* by having the penultimate joints of the antennæ transverse, and by the dorsal series of elytra consisting of only 4–6 punctures; the colour is somewhat variable, the thorax being usually darker on disc, and the elytra having the scutellary region, and a larger or smaller patch at apical-external angles black; sometimes the scutellary patch is absent, and sometimes specimens occur in which the elytra are chiefly black with a small space on each side testaceous; occasionally the upper surface is entirely testaceous with the head and hind body darker; the hind body is, as a rule, dark, with the apex of segments lighter. L. $2\frac{1}{2}$ –3 mm.

Male with the sixth ventral segment smooth in centre, seventh tuberculate on middle of base, and longitudinally impressed, with the impression smooth.

In fungi; generally distributed and common throughout the kingdom.

MYCETOPORUS, Mannerheim.

The species belonging to this genus are easily distinguished from those of the preceding genera by the small or very small last joint of the maxillary palpi, which is much shorter and narrower than the penultimate, and is slender and subulate; the species vary very much in size; for instance, among the British species there are some which in size and general appearance resemble ordinary examples of *Bryoporus*, while others are not larger than species of *Tachyporus*, from which, however, they may be easily distinguished by their much narrower form, and more strongly and evenly fusiform appearance; there are at present about fifty described species: these are almost entirely confined to the temperate and colder regions of the northern hemisphere, and to the Canaries and other adjacent Atlantic islands; one species, however, has been described from the East Indies, and one from Central America; the latter is found at a height of from 4000 to 6000 feet; it is worthy of notice, in passing, that many of the species of the northern genera of Tachyporinæ which are found in Central America occur at very high altitudes; at one time they were probably spread over the whole district, but, as the climate altered, representatives of the genera that were forced to retreat before the heat sought higher and cooler localities, and have there perpetuated themselves down to the present time.

It seems very probable that the sub-genus *Ischnosoma*, Thoms. (containing *M. splendidus* and v. *longicornis*), will have eventually to be

separated from *Mycetoporus*; at present, however, it appears to be retained under the latter genus by most authorities.

- I. Antennæ comparatively short; fifth joint of posterior tarsi longer than fourth; first joint of intermediate and posterior tarsi nearly equal in length to the three following united.
 - i. Third joint of antennæ evidently longer than second; size larger.
 1. Thorax without accessory punctures at sides of disc.
 - A. Upper surface pitchy or pitchy red, with strong bluish iridescent reflection, head darker *M. LUCIDUS, Er.*
 - B. Upper surface shining black or pitch-black with bright red elytra, not iridescent . . . *M. SPLENDENS, Marsh.*
 2. Thorax with two or three accessory punctures at sides of disc besides the usual punctures near margins.
 - A. Upper surface of a dull but distinct red colour with head and hind body darker, with a slight bluish iridescent reflection on hinder parts; form larger and broader and more fusiform *M. PUNCTUS, Gyll.*
 - B. Upper surface not iridescent; form narrower and more parallel.
 - a. Antennæ with fourth joint subquadrate; upper surface entirely pitchy, or brownish red, sometimes castaneous, with head and hind body darker *M. LEPIDUS, Grav.*
 - b. Antennæ with fourth joint longer than broad, upper surface black or pitchy-black with elytra bright red *M. LONGULUS, Mann.*
 - ii. Third joint of antennæ not or scarcely longer than second; size smaller; thorax without accessory punctures.
 1. Elytra with an accessory series of at least three punctures between the sutural and second rows of punctures.
 - A. Elytra with accessory series consisting of three or four punctures; size smaller . . . *M. NANUS, Er.*
 - B. Elytra with accessory series consisting of eight or nine punctures *M. MONTICOLA, Fowler.*
 2. Elytra without accessory series between the sutural and second rows of punctures.
 - A. Upper surface black, with humeral angles and hind margin of elytra testaceous; antennæ slender *M. ANGULARIS, Rey.*
 - B. Upper surface dark with thorax, elytra, and sometimes head, bright red; antennæ strongly thickened *M. CLAVICORNIS, Steph.*
- II. Antennæ very long, reaching considerably beyond base of thorax; fifth joint of intermediate tarsi not longer than fourth; first joint of intermediate and posterior tarsi equal in length to the two following united.
 - i. Intermediate series of elytra consisting of 5-7 punctures; form narrower; antennæ more slender,

- less thickened towards apex ; base of segments of hind body more thickly punctured *M. SPLENDIDUS*, Grav.
 ii. Intermediate series of elytra consisting of 7-12 punctures ; form broader ; antennæ stouter, more thickened towards apex ; base of segments of hind body more finely and sparingly punctured *M. LONGICORNIS*, Kraatz.

***M. lucidus*, Er.** Pitchy red, or pitchy brown, shining, with a strong bluish iridescent reflection especially on the hinder parts, rather broad in the middle and narrowed in front and behind ; head black or almost black rather longer than broad, antennæ moderately long, slightly thickened towards apex, obscurely ferruginous with base lighter, penultimate joints transverse ; thorax narrowed in front, almost as broad behind as the elytra, with some large setigerous pores on margin, two in front being placed at some distance from the margin ; there are, however, no accessory punctures on the sides of disc ; elytra about a third longer than thorax, with three longitudinal series of punctures (consisting of 12-15 in each row) and two accessory series of 7-9 punctures between the sutural and intra-humeral series ; there is also an extra confused series before the marginal one, so that each elytron appears to be furnished with six series ; hind body gradually narrowed behind, rather strongly and sparingly punctured, with second segment (the first apparent) smooth ; legs testaceous, with posterior coxæ dark. L. $5-5\frac{1}{2}$ mm.

Male with the seventh ventral segment of hind body slightly rounded at apex, female with the same segment evidently rounded.

In moss, dead leaves, &c. ; local, and as a rule not common ; London district, not uncommon, Bexley, Maidstone, Shirley, Caterham, Esher, Coombe Wood, West Wickham, Croydon, Hainault, Highgate, &c. ; New Forest ; Llangollen ; Repton, Burton-on-Trent ; Liverpool ; Scotland, rare, Tweed, Tay, Dee, and Moray districts.

***M. splendens*, Marsh** (*splendidus*, Duv. nec Grav., *australis*, Rey, *confinis*, Rey). Shining black or pitchy black, with the elytra bright red, and the apex of segments of elytra and sometimes side and basal margins of thorax reddish testaceous ; it is narrower and a little less fusiform than the preceding species, and has no iridescent reflection ; head slightly broader than long, antennæ dark with base lighter, penultimate joints strongly transverse ; thorax much as in the preceding except that it is not so much narrowed in front ; the front marginal punctures are situated nearer the margin ; elytra a little longer than thorax, with three longitudinal series of rather large setigerous punctures, the sutural containing 4-6, the intra-humeral 4-9, and the marginal a larger number of finer punctures ; there is no accessory stria ; hind body rather strongly and sparingly punctured, with apex of segments and central portion of second segment smooth ; legs red or reddish testaceous, with the posterior coxæ and trochanters often, and femora sometimes, darker. L. $4\frac{2}{3}-5$ mm.

Male with the sixth ventral segment of hind body keeled and angularly prolonged at apex, seventh segment slightly rounded ; female with the sixth segment scarcely prolonged, seventh evidently rounded.

In moss, dead leaves, &c., also under refuse ; often found running on pavements, on

palings, by sweeping, &c.; local, but sometimes plentiful; London district, not uncommon and very generally distributed; Isle of Wight; Devonshire; Repton; Wallasey, near Liverpool; Northumberland district, rare; not recorded from Scotland.

M. punctus, Gyll. In shape and general appearance much resembling *M. lucidus*; it is, however, a little broader, as a rule, in the middle; the colour is more or less brightly red, with the head and the base of the segments of hind body more or less broadly dark; the elytra are sometimes dusky towards apex and at sides; the hinder parts have a distinct bluish iridescent reflection, which is not, however, so strong as in *M. lucidus*; head about as long as broad, antennæ brownish with the base, and usually the apical joint, lighter, penultimate joints transverse; thorax strongly narrowed in front with the usual punctures on margin, and two distinct accessory ones on sides of disc, placed longitudinally; elytra a third longer than thorax, with three series of punctures (consisting of 6-7, 8-10, and 10-12 punctures respectively, beginning from the sutural series), with an accessory series which appears to be very variable between the first two; hind body rather strongly and sparingly punctured, smoother on centre of second segment; legs reddish, with the posterior coxæ, and sometimes the trochanters and femora, dark. L. $4\frac{1}{2}$ -5 mm.

The sexual characters do not appear to present any marked peculiarity.

In dead leaves, &c., also by sweeping; rare; Croydon, Leith Hill, Forest Hill, Wimbledon, Mickleham, Shirley, Reigate, Chobham, Sanderstead, Purley Downs, &c.; Repton, Burton-on-Trent; Sherwood Forest, by sweeping, also out of faggots; Scotland, rare, Tweed, Forth, and Clyde districts.

M. lepidus, Grav. (*brunneus*, Marsh, *humeralis*, Mots.). Much narrower, less fusiform, and more parallel-sided than any of the preceding; very variable in colour, sometimes being entirely pitch-black, at other times having the elytra of an obscure red colour, and at others entirely reddish-brown with the elytra lighter; head about as long as broad, antennæ dark, or ferruginous testaceous, with base lighter; fourth joint subquadrate, penultimate joints transverse; thorax not so strongly narrowed in front as in some of the other species, with the usual punctures near margin, of which the apical ones are placed near the margin, and two or three accessory punctures at sides of disc; elytra a third longer than thorax, with three series of setigerous punctures (consisting of 6-8, 6-8, and 8-10, respectively), without accessory series, but occasionally with one or two punctures between rows; hind body rather strongly and sparingly punctured; legs lighter or darker testaceous or pitchy red. L. $3\frac{2}{3}$ -4 mm.

The sexual characters offer no peculiarity, the female only having the seventh ventral segment of hind body more evidently rounded at apex than the male.

In moss, flood refuse, &c., and at roots of grass in marshy places; rather common and widely distributed throughout the country from the southern counties to the extreme north of Scotland.

M. longulus, Mann. Very like the preceding, of which it is probably only a constant variety; in fact by many authorities it is so considered; it is shining black or pitchy black with the elytra bright red and the apex of the segments of hind body and sometimes side and basal margins of thorax testaceous; it is larger than *M. lepidus*, and has the fourth and fifth joints of the antennæ longer; in colour and general appearance it closely resembles *M. splendens*, but it is narrower and more paralld-sided, and may be at once distinguished by the presence of accessory punctures on the sides of the disc of thorax. L. $4-4\frac{1}{2}$ mm.

In moss, dead leaves, &c.; generally distributed in England, but not so common as the preceding; London district, not uncommon; Hastings; New Forest; Llangollen; Midland district, widely distributed; Lincoln (on pavements); Mablethorpe, Lincolnshire, under sea-weed and refuse on shore; Scarborough; Liverpool; Manchester; Northumberland district, rare; Scotland, not common, Solway, Forth, Tweed, and Dee districts.

M. nanus, Er. (*nec* Grav.). A small, fusiform species, somewhat variable in colour, but as a rule, when fully mature, shining pitchy black with the apical margin of elytra and the hind margins of the segments of hind body more or less distinctly lighter; the elytra, however, are often entirely reddish, and sometimes the thorax, and occasionally examples occur that are altogether rufo-testaceous; the head is slightly longer than broad, narrowed in front; antennæ moderate, dark, with base lighter, second and third joints of about equal length, penultimate joints transverse; thorax at least as long as broad, narrowed in front, with marginal punctures; elytra a little longer than thorax with three series of punctures somewhat variable in number, and an accessory row of three or four punctures between the sutural series and the following; hind body rather finely and sparingly punctured with the apex of segments smooth, and also the centre of the second segment; legs pitchy, more or less reddish, tarsi usually lighter. L. 3 mm.

The sexual differences are much as in the preceding.

In moss, &c.; local and usually rare; Chatham, Caterham, Croydon (in which latter locality it was first discovered in Britain by Dr. Power), Warlingham; Cheshire; Liverpool; Hartlepool (abundant); Northumberland district; Scotland, rare, Forth, Tay, and Clyde districts.

M. monticola, Fowler. Very like *M. nanus*, but rather larger and longer with the antennæ distinctly stouter, and more lightly coloured, and the thorax somewhat more narrowed in front; the elytra are furnished with a distinct accessory series of punctures between the sutural and second rows, which consists of from seven to nine or ten punctures, instead of three or four as in *M. nanus*; the specimens that have been taken appear to vary in colour from shining pitchy black to bright rufo-testaceous; the hind body is a little more coarsely punctured and its apex is lighter than in the preceding species. L. $3-3\frac{1}{2}$ mm.

Rare; taken by Dr. Sharp on the top of Cheviot, and also on a mountain near Strath-cannich, Inverness-shire.

This species was first introduced as *M. tenuis*, Rey, by Dr. Sharp, but he afterwards queried it as a new species; it does not agree with the description of *M. tenuis*, as that species appears to be distinctly smaller, and has the accessory series of pores consisting of a less number than in *M. nanus*.

M. angularis, Rey (*niger*, Baudi, *Reyi*, Pand.). Rather smaller than *M. nanus*, dark pitchy black, shining, with the posterior margins of thorax and elytra, and a more or less distinct humeral patch on each of the latter, testaceous; head rather short; antennæ plainly thickened towards apex, dark with base testaceous, third joint rather more slender than, but about as long as second, penultimate joints strongly transverse; thorax nearly as long as broad at base, black with hind margin, and sometimes side and apical margins, less plainly, testaceous, with the usual marginal punctures, but without accessory punctures on sides of disc; elytra a little longer than thorax, with three series of punctures (varying from eight to ten in each series), but with no accessory row (a point which will separate dark specimens from doubtful *M. nanus*); hind body finely and sparingly punctured, more thickly on the sides of the first segments; legs testaceous, sometimes reddish, with the posterior coxæ, and sometimes the posterior femora, darker. L. $2\frac{2}{3}$ –3 mm.

Sexual differences slight, the female, as in several other species, having the apex of seventh ventral segment more rounded than it is in the male.

In moss, dead leaves, &c.; not common; Birch Wood, Chobham, Reigate, Esher, Wimbledon, Caterham, Forest Hill, Coombe Wood, Weybridge; Southwold, Suffolk; Dover; Snowdon; Cheshire; Scotland, rare, Tweed, Dee, and Moray districts.

M. clavicornis, Steph. (*pronus*, Er., *brevicornis*, Matth.). A very distinct species which may at once be recognized by its short clavate antennæ as well as by its colour, which is bright reddish testaceous, with the head more or less dark, and the base of the segments of hind body more or less broadly pitchy-red or brownish; the antennæ are evidently shorter than head and thorax united, strongly thickened, brownish, with base testaceous, third joint a little narrower, but not longer than second, the following joints gradually thicker, 4–5 rather strongly, 6–7 strongly, and 8–9 very strongly, transverse; thorax with the usual marginal pores, but with no accessory punctures; elytra about as long as, or a little longer than, thorax, with three series of setigerous punctures, but without accessory series; hind body rather strongly and sparingly punctured, with apex of segments smooth; legs testaceous red, with posterior coxæ dark. L. $2\frac{2}{3}$ mm.

In moss, dead leaves, &c.; occasionally by evening sweeping; local; London district, not uncommon; Hastings; New Forest; Dean Forest; Bewdley Forest; Coleshill, near Birmingham; Shrewsbury; Repton, Burton-on-Trent (in flood refuse); Manchester; Scotland, rare, Solway, Tweed, and Moray districts.

V. forticornis, Fauv. This variety, regarded by Rey and others as

a separate species, is rather larger than the type form, and has the head entirely testaceous-red (in the type form it is always more or less infusate); the fourth and fifth joints of the antennæ are also said to be a little longer, and the hind body is a little less strongly punctured. L. vix 3 mm.

There is a specimen of what appears to be this variety in Dr. Sharp's collection, from Inverness-shire; the colour of the head, however, appears to be a misleading character, and even the colour of the elytra occasionally varies; I have a specimen taken by myself at Repton in which each elytron has a large dusky spot on disc.

M. splendidus, Grav. Long and slender, somewhat fusiform, shining reddish testaceous, with the vertex of head, base of elytra, chest, and hind body, except margins of segments, more or less obscurely dark; head longer than broad, antennæ long and slender, only slightly thickened towards apex, reddish, with the first joint testaceous, third joint evidently longer than second, penultimate joints evidently longer than broad; thorax narrowed in front, narrower at base than elytra, with the usual marginal pores; elytra about a third longer than thorax, with three series of setigerous pores on each, the sutural and intra-humeral consisting of 5–7 punctures, without accessory series; hind body strongly pubescent, rather thickly punctured at the base of the segments; legs testaceous, with the intermediate and posterior coxæ obscure. L. $3\frac{1}{2}$ – $4\frac{1}{2}$ mm.

Male with sixth ventral segment emarginate and ciliate on apical border, seventh segment deeply excised, with the lobes of the excision pointed and divaricate.

In moss, haystack refuse, &c.; common and generally distributed in the southern and central portions of England; rarer further north, and not recorded from the Northumberland district; Scotland, not common, Solway, Tweed, Forth, Tay, and Dee districts.

M. longicornis, Kr. (*splendidus*, var. *a*, Er.). This species is very closely allied to the preceding, and is by many authors considered merely a variety; it appears, however, to differ in several rather important points: it is a little longer, and a little broader in the middle, and therefore slightly more fusiform; the intermediate series of the elytra is composed of from 7–12 punctures, and the hind body is less pubescent, and more finely and less closely punctured at the base of the segments; the antennæ also are a little longer and more thickened towards apex; the excision of the seventh ventral segment of the male has the lobes less pronounced and less divaricate. L. $4\frac{1}{2}$ –5 mm.

In moss, haystack refuse, &c.; rare; Shirley and Purley Downs, West Wickham, Guildford; Littlington (Sussex); Horning Fen, Norfolk; Repton; Coleshill, near Birmingham; Scotland, rare, Solway and Clyde districts.

HABROCERINÆ.

The members of this family are remarkable for the development of the

posterior coxæ, which are large, triangular, and prominent; from the *Trichophyinae*, which they resemble in having the antennæ slender, capillary, and verticillate-pilose with the first two joints dilated, they are distinguished by having the sides of the elytra margined, as well as by the shape of the posterior coxæ; in general form they are very unlike *Trichophya*, being more narrowed behind and less depressed, and more closely allied to *Tachyporus*, which our single species much resembles in general contour; only one genus is known.

HABROCERUS, Erichson.

This genus contains at present four species, one from Europe, one from Chili, and two from North America; they live in refuse, dead leaves, under dry dung, &c.; they are rapid and jerky in their movements.

The larva of *Habrocerus capillaricornis* is described by Rey (Brévipennes, 1883, p. 6): it is elongate, rather convex, slightly enlarged and rounded behind, almost smooth, of a livid pitchy testaceous colour, and shining, furnished with long setæ; head large, as broad as thorax, antennæ short, pale; prothorax subquadrate, somewhat narrowed in front, with the sides straight; meso- and meta-thorax transverse, about equal; abdomen with the first eight segments short, subequal, the last narrower and furnished with two-jointed cerci, of which the first joint is elongate, and an anal appendage, which is conical and truncate, and not as long as the first joint of the cerci; legs short, pale. The pupa is pale testaceous or whitish, and presents no marked peculiarity.

M. Rey says that he has found the larva, with the perfect insect, in company with the larvæ of *Scaphisoma agaricinum* in rotten wood infected with fungoid growth.

H. capillaricornis, Grav. Upper surface entirely black or pitchy black (dark pitchy red or even testaceous red in more or less immature specimens), with the extreme margins of segments of hind body reddish; convex, shining; head and thorax smooth; antennæ slender, capillary, and filiform, a little longer than head and thorax united, darker or lighter pitchy testaceous, with joints 1-2 dilated, and 4-10 oblong, somewhat fusiform, of almost equal length or gradually slightly shorter; thorax transverse, as broad behind as elytra, moderately contracted in front, with the anterior angles obtuse, and the posterior angles broadly rounded; elytra slightly transverse, about as long as thorax, obsoletely shagreened, and also sparingly and obsoletely punctured; hind body very finely and thickly punctured, with the sides furnished with long setæ (which are also present in less numbers on the front parts); legs lighter or darker testaceous. L. $2\frac{2}{3}$ mm.

Sixth ventral segment of hind body broadly truncate in male, emar-

ginate or sinuate at apical margin in female; the sexes are confused by some authors.

In moss, dead leaves, under dry cow-dung, &c.; London district, rather common and generally distributed; Hastings; New Forest; Cambridge district; Repton, Burton-on-Trent; Scarborough; the species is scarce in the Midlands, and there is apparently no record from the more northern counties or from Scotland.

TRICHOPHYINÆ.

This family consists of only one genus and one species, which was formerly and is still by many authorities included under the *Tachyporinæ*, but was removed from them by M. Pandellé, followed by M. Cl. Rey; it is chiefly remarkable for its antennæ, which are long, slender, capillary, and verticillate-pilose, with the two first joints strongly dilated; they are inserted under the lateral borders of the forehead, rather far from the eyes, in an evident cavity; Rey considers the family as transitional between the *Aleocharinæ* and the *Tachyporinæ*, and as approaching the former in their projecting head, simply pubescent and not spinose tibiæ, and the fact that the elytra are not margined, while they resemble the latter in the method of the insertion of the antennæ; from the *Habrocerinæ* they are distinguished by having the posterior coxæ transverse instead of triangular and prominent, and by the absence of margins of elytra.

TRICHOPHYA, Mannerheim.

This genus comprises one species, which is found in England, France, Central Europe, and Madeira (*T. Huttoni*, Woll., being identical with our species); it is found in moss, refuse, dead leaves, under stones, and sometimes under bark.

T. pilicornis, Gyll. Black, somewhat shining, with the elytra duller, sometimes pitchy, brownish, or even reddish; upper surface depressed and somewhat parallel-sided; head rather broad, but narrower than thorax, subtriangular, very finely and thickly punctured, black with mouth parts pitchy red; antennæ as above described, pitchy red or dusky, all the joints after the first two slender and elongate; thorax transverse, about as broad in front as behind with sides rounded, posterior angles obtuse, thickly but distinctly punctured; elytra longer than thorax, very finely and thickly pubescent and punctured; hind body almost as broad as elytra, hardly narrowed until just before apex, very finely and thickly punctured, with apex often reddish; legs pitchy red with tarsi lighter. L. $3\frac{1}{2}$ mm.

Male with first four joints of anterior tarsi slightly dilated.

In moss, dead leaves, &c., especially near fir trees; local; Wimbledon, Mickleham, Forest Hill, Crystal Palace (found in the windows occasionally in numbers, having flown over probably from Shirley), Shirley (under fir branches in pits), Caterham; Horsham; The Holt (Farnham); Tonbridge; Lincoln; Scarborough; Scotland, rare, Tay district only.

STAPHYLININÆ.

This sub-family contains, as at present constituted, about fifty genera, which are very widely distributed; if we include the many sub-genera that have been formed by different authors, this number will be considerably increased; the Xantholininæ have until comparatively recently been included under the present sub-family, but they appear to be distinct, and it has therefore been thought best to follow Thomson and Mulsant and Réy in separating them on the characters afforded by their approximate antennæ and the presence of an antesternal piece situated in the emargination of the prosternum, as well as by their more linear and generally different form.

The Staphylininæ contain the most conspicuous members of the family Staphylinidæ, the genera *Ocypus*, *Emus*, *Creophilus*, *Staphylinus*, and *Velleius* being especially noticeable; some of the genera, e.g. *Philonthus*, are very numerous as regards species; on the other hand, two or three of our British genera, as *Velleius*, *Euryporus*, and *Acylophorus*, contain only one indigenous species which, in each case, is very rare.

In the Staphylininæ the antennæ are situated at the anterior margin of the front, but differ somewhat in position in the two tribes into which the sub-family may naturally be divided, viz. the Quediina and Staphylinina; the anterior coxæ are large and conical; the trochanters of the hind legs are prominent; the tibiæ, at least the intermediate and posterior pairs, are spinose; the antennæ are eleven-jointed and the tarsi five-jointed in all the species belonging to our genera,* and the hind body is more or less strongly margined, and is, as a rule, capable of being raised by the insect into a perpendicular position, or even curled over towards the head.

The larvæ of the sub-family (including those of the Xantholininæ) in appearance and general shape bear a strong analogy to those of the Carabidæ; the latter, however, have six ocelli on each side of the head, the mandibles toothed, the outer lobe of the maxillæ two-jointed, and the tarsi furnished with two claws, whereas in the Staphylininæ there are only four ocelli on each side, the mandibles are toothless, the outer lobe of the maxillæ is not jointed, and the tarsi terminate in single claws; the larvæ of the Dytiscidæ may be distinguished from those of the Staphylininæ by having six ocelli, and double claws, and by the mandibles being perforated, whereas the larvæ of the Silphidæ, which in some ways are related to them, also possess six ocelli, and have a distinct labrum, which organ is not visible in the Staphylininæ; in the Histeridæ, which together with the two last-mentioned groups have jointed cerci, the ocelli are entirely wanting (*vide* Chapuis et Candéze, Catalogue des Larves des Coléoptères, pp. 57, 58; Erichson, Gen. et Spec. Staph., p. 15, &c.). The scuta of the thoracic segments in the

* The genus *Tanygnathus* has the tarsi four-jointed.

Staphylininæ are complete, those of the segments of the hind body incomplete and divided.

As above mentioned, the sub-family may be divided into two very natural groups, which however, until quite recently, have been defined by variable and inconstant characters, and have been separated more on the ground of external facies than for any other reason ; Dr. Sharp, however (Biol. Cent. Am. Staphylinidæ, p. 320), has lately pointed out that there exists a very constant character which defines the groups very satisfactorily as follows :—

- Prosternum connected with the sides of the thorax behind the anterior angles which are consequently free QUEIDIINA.
- Prosternum connected with the sides of the thorax at the anterior angles which are not free STAPHYLININA.

QUEIDIINA.

In this tribe the antennæ are inserted at the anterior point of the lateral margin of the front ; the eyes are very often large and prominent ; the thorax is smooth and glabrous and has very few dorsal punctures, those that exist being usually situated on the anterior portion ; it is usually narrowed in front and widened at base, which is at least as broad as the elytra, and the lateral margin is single and acute ; six British genera belong to the tribe, one of which, *Quedionuchus*, has been recently formed by Dr. Sharp, and is represented in our fauna by the sub-cortical species *Q. lævigatus*.

- I. Antennæ geniculate, first joint as long as the four succeeding ; palpi with the last two joints thickened . ACYLOPHORUS, Nord.
- II. Antennæ not geniculate.
 - i. Labial palpi with the last joint securiform EURYPORUS, Er.
 - ii. Labial palpi with the last joint subulate, very small. HETEROTHOPS, Steph.
 - iii. Last joint of all the palpi elongate, conical or fusiform.
 - 1. Antennæ strongly serrate VELLEIUS, Mannh.
 - 2. Antennæ simple, not serrate.
 - A. Posterior femora not or not strongly spined, margins of thorax plainly reflexed QUEIDIUS, Leach.
 - B. Posterior femora strongly spined ; margins of thorax not, or very slightly reflexed QUEDIONUCHUS, Sharp.

ACYLOPHORUS, Nordmann.

This genus contains more than thirty species, which are widely distributed in the northern and southern hemispheres ; eight new species have recently been described from Central America and one from Australia, and the genus eventually will probably prove to be a very large one ; our single species is extremely rare, and may at once be distinguished from our other Quediina by the orange-red colour of the base of the seventh segment of hind body, which is especially bright during life.

A. glabricollis, Boisd. (*glaberrimus*, Herbst., *pulcher*, Scriba). Elongate, fusiform, shining black, with a broad ring of an orange-red colour at base of seventh segment of hind body, which becomes more yellow after death; head small, only half as broad as thorax; antennæ about as long as head and thorax united, evidently thickened towards apex, black, with the base of first joint, and sometimes of second reddish, first joint very long, forming a scape, as long as the four succeeding together, penultimate joints slightly transverse; thorax strongly narrowed in front, as broad behind as elytra, smooth and shining, with four setigerous punctures on disc; elytra about as long as thorax, with long grey pubescence, strongly and rugosely punctured; hind body gradually and rather strongly narrowed to apex, rather strongly and somewhat rugosely punctured at the base of the front segments, more finely and sparingly on the apex of these, and the whole of the last segments; legs black, with the tarsi, and sometimes the knees, reddish. L. 6-7 mm.

In very wet places; found running and flying on the surface of the water among weeds and submerged grass during the first hot days of spring; on the Continent it has been obtained by wringing weeds from below the surface of the water; very rare; has only been found hitherto in this country at Merton, Surrey, and Barnes, by Dr. Power, and near Richmond by Mr. Rye and Mr. Champion.

The ciliated styles of the seventh and last segments are very long in this species; in the male the segment of the armature appears to be strongly and narrowly excised.

EURYPORUS, Erichson.

This genus at present only contains five species, two from Europe, one from the Canaries, one from North America, and one from Sumatra; one species occurs in Britain, but it is very rare; in general appearance it somewhat resembles a large *Quedius tristis* or *fuliginosus*.

E. picipes, Payk. Rather broad, depressed, and parallel, shining black, with the mouth parts red; head small, somewhat ovate; antennæ about as long as head and thorax united, black, with the base, and more or less of the apical joint, testaceous, first joint as long as the two following, 4-10 gradually shorter, the penultimate joints being hardly transverse; thorax narrowed in front, a little broader at base than elytra, with three large setigerous punctures on each side of disc in front; elytra transverse, evidently shorter than thorax, strongly, rather thickly, and rugosely punctured; hind body as broad as elytra, somewhat rounded at sides and narrowed gradually and slightly from behind middle to apex, not so thickly, but almost as strongly, punctured as elytra; legs lighter or darker pitchy red with the tarsi lighter. L. 8-10 mm.

Male with the seventh ventral segment of hind body slightly but distinctly sinuate in middle of apical margin, and the last joint of

maxillary palpi slightly thickened towards apex and obliquely truncate; female with the seventh ventral segment rounded, and the last joint of the maxillary palpi somewhat fusiform and narrowed at apex.

In moss and dead leaves, especially in woods; also occasionally in waterfalls; rare; Strood, Kent (taken in some numbers by Mr. Champion and Mr. J. J. Walker from moss in a wood during early spring); Faversham; Purley Downs; Birch Wood; Chatham; Hastings; Glanvilles Wootton; Holm Bush, Brighton; Oxfordshire; Barmouth, Wales (W. Garneys); Scotland, rare, Lowlands, Solway, Tay, and Moray districts.

HETEROTHOPS, Stephens.

This genus comprises about thirty species, which are widely distributed; only one or two have been recorded from the tropics, but several have been comparatively recently described from Southern Australia and Queensland; a rather large proportion belong to Russia, Northern Asia, and North America; only one species is known from South America, which occurs, like so many of the more northern forms, in Chili; there are four British species; three of these occur in haystack refuse, and general vegetable rubbish, and one is found under decaying sea-weed on the shore; they are very rapid in their movements.

- I. Elytra with at least apex lighter; antennæ dark with base testaceous.
 - i. Head subquadrate, or short oval, with posterior angles marked.
 - 1. Antennæ elongate, with penultimate joints oblong; elytra longer, usually dark with apical margin light H. BINOTATA, Er.
 - 2. Antennæ rather short, with penultimate joints quadrate or transverse; elytra shorter, usually pitchy brown with base darker H. PRÆVIA, Er.
 - ii. Head oval oblong, rather elongate, with posterior angles rounded; thorax and elytra often pitchy brown, apex, and often margins, of latter lighter H. DISSIMILIS, Grav.
- II. Elytra and antennæ unicolorous black H. QUADRIPUNCTULA, Gyll.

H. binotata, Er. Rather narrow and fusiform, shining pitch-black, with the apical margin of elytra more or less plainly testaceous, and the apex of hind body testaceous or pitchy-reddish; head short oval, a little narrower than thorax; antennæ dark, with base testaceous, rather long and slender, with penultimate joints not transverse; thorax narrowed in front, smooth and shining, with two large pores on each side of disc; elytra somewhat variable in length, rather finely and thickly punctured; hind body narrowed behind, finely and thickly punctured on segments 2-6, seventh segment sparingly punctured; legs testaceous with posterior coxæ darker. L. $4\frac{1}{2}$ mm.

Male with the seventh ventral segment of hind body excised narrowly in a rather sharp angle; anterior tarsi strongly dilated; female with the seventh segment rounded and the anterior tarsi not strongly dilated.

In decaying sea-weed on the shore; local, but often common where it occurs; Whitstable, Sheerness, Rochester, Margate, Kingsgate, Southend; Southsea, Weymouth, Isle of Wight, and other southern localities; Swansea; Hunstanton; Manchester; Liverpool; Scotland, local, Clyde and Forth districts.

H. prævia, Er. (*nigra*, Kr., *nidicola*, Thoms.). This species is rather smaller than the preceding, and may be distinguished by its shorter antennæ, which have the penultimate joints transverse; the thorax is slightly more narrowed in front, and the elytra are rather shorter and, as a rule, lightly coloured, with the punctuation a little finer and closer; in the male the anterior tarsi are a little less dilated; the elytra are variable in colour, being dark with apex lighter, reddish brown with base lighter, reddish brown with base obscurely darker, or entirely reddish brown. L. 4 mm.

In dry hotbeds, among dead leaves, and in vegetable refuse generally; not common; Burton-on-Trent (J. Harris); Cambridge (Sharp); Ripon (Waterhouse); Knowle, near Birmingham (Blatch); Scarborough (Lawson); Manchester; there is no record, as far as I know, from any place further north.

H. dissimilis, Grav. (*prævia*, Thoms. *nec* Er., v. *brunneipennis*, Kies., *flavolimbata*, Mots.). Shining black with apical margin of elytra testaceous, and the apex and apical margins of the segments of hind body often reddish testaceous; sometimes the thorax and elytra are entirely reddish testaceous, the latter having the apex and margins lighter; head rather long and narrow, much narrower than thorax; antennæ long and slender with penultimate joints not transverse; thorax smooth and shining with two or three punctures on each side of disc; elytra about as long as thorax, rather finely and thickly and somewhat rugosely punctured; hind body finely and thickly punctured in front, more sparingly behind; legs testaceous, with the posterior coxæ more or less dark. L. 4-4½ mm.

Male with seventh ventral segment of hind body angularly excised, anterior tarsi strongly dilated.

In haystack refuse; not uncommon and sometimes plentiful; London district, common; Horning Fen, Norfolk; Cambridge; Worthing; Weymouth; Knowle, near Birmingham; Manchester; Wallington, Northumberland; not recorded from Scotland; Ireland, Portmarnock.

H. quadripunctula, Gyll. A small, shining, entirely black species, with the antennæ unicolorous black, and the legs dark, with the knees, tarsi, and sometimes anterior coxæ lighter; the colour will at once separate it from the other species; it is also rather smaller, and has the elytra evidently more sparingly punctured, the punctuation being also relatively stronger; the sexual characters are much the same as in the other species. L. 3½-3¾ mm.

In haystack, flood, and other refuse, also occasionally in nests of *Formica fuliginosa*; rare; St. Mary Cray (Surrey), Darenth Wood, Forest Hill, Croydon, Tottenham; Worthing (Saunders); Bewdley Forest (Blatch); Manchester (Reston).

VELLEIUS, Mannerheim.

This genus, which is united by many authors with *Quedius*, seems to be abundantly distinct by reason of its short, thick, and strongly serrate antennæ, as well as by its broad and robust form; the single European species is very rare, and has only occurred in Britain in the New Forest; it has been found on the Continent in the nests of the hornet (*Vespa crabro*), and is said to prey upon the larvæ, but it is not always attached to these insects.

V. dilatatus, F. A large, broad, somewhat depressed species, shining black, with the elytra duller and clothed with a fine close dark-grey pubescence; head somewhat round, considerably narrower than thorax, antennæ short and stout, dark with the last joint ferruginous, third joint twice as long as second, joints 4-10 prolonged internally and serrate; thorax subtransverse, almost semicircular, emarginate in front, with the anterior angles projecting, evidently broader than elytra, depressed and explanate at the sides, more or less iridescent, together with head extremely finely shagreened; scutellum punctured; elytra about as long as thorax, thickly and finely punctured, the punctuation being somewhat rugose; hind body gradually narrowed towards apex, rather finely and thickly but distinctly punctured, with a more or less distinct iridescent reflection; legs black, robust, anterior tarsi dilated. L. 16-25 mm.

Male with the seventh ventral segment of hind body broadly and feebly sinuate in the middle of apical margin, with a smooth triangular space before the sinuation; head broader than in female.

The real habitat of this rare species appears to be somewhat doubtful; it has only occurred in this country in the New Forest, where it was taken sparingly by Turner in rotten wood, and, I believe, at sugar placed on trees to attract moths; on the Continent, as above mentioned, it has been taken in hornets' nests, but according to Mulsant and Rey it has also occurred in several parts of France under carcasses and stones; Turner also found the larva, of which there are two or three specimens in Dr. Power's collection; the head is large, suborbicular, furnished with powerful jaws; the prothorax is as long as the meso- and meta-thorax together; the body is gradually narrowed behind, and the cerci are as long as the anal appendage, and somewhat longer than the last two segments united.

In size the species varies very considerably, the largest specimens reaching 25 mm., and the smallest not exceeding 14 or 15 mm.

QUEDIUS, Leach.

This is one of the largest genera of the Staphylinidæ, and contains at present about two hundred species, which are widely distributed over the greater part of the world in both hot and cold climates; Dr. Sharp (l.c. p. 328), in describing fifteen new species from Central America, says that we have as yet only three or four species from Tropical South America, and that Chili possesses numerous very aberrant species. The European and North American forms, the Australian forms, and the Tropical and Central American forms appear to fall into three divisions respectively as follows :—

1. Genæ with a raised margin ; elytra evenly and regularly punctate and pubescent.
2. Genæ without raised margin ; elytra evenly and regularly punctate and pubescent.
3. Genæ with a raised margin ; elytra polished, with only a few setigerous punctures, arranged in series, and in addition with a very regular series of conspicuous punctures contiguous with the epipleural margin.

These forms are not absolutely confined to the separate regions ; examples of all three, for instance, occur in Central America ; our British forms must be, of course, referred to the first group, but the common *Q. cinctus* in some respects agrees better with the third ; Dr. Sharp, however, informs me that the Tropical American forms are very remarkable for the great size and convexity of the eyes, which are larger than in the *Raphirus* section of *Quedius*, so that it cannot belong to the same group, although as regards punctuation, &c., it appears to be allied to them.

The British species are about thirty in number, and differ very much in general appearance ; certain sections present great difficulties (notably *Q. fulgidus* and its allies and varieties), and it is moreover very difficult to find a satisfactory character on which to establish the main divisions ; Erichson's character, "lower marginal projection from thorax of either horny or parchment-like consistence," is very unsatisfactory, and the divisions of Fairmaire and Laboulbène (*Faune Ent. Franc.* i. p. 535), although useful, are very incomplete ; after some consideration I have adopted Mulsant and Rey's scheme, which rests on the relative size of the eyes, and the structure of the labrum ; this is evidently derived from Thomson (*Skand. Col.* i. p. 25), and appears to afford the best method for dividing the genus into natural and workable sub-genera ; at the same time it must be borne in mind by the student that it is quite possible for mistakes and confusion to arise without a careful study of the general descriptions of the individual species.

The larva of *Quedius fulgidus* is described and figured by Schiödte (ii. p. 115, pl. x., fig. 17) : the head is oblong, subrectangular, nearly as broad as prothorax, which is very slightly narrowed in front, and is as long as the meso- and meta-thorax together ; the first abdominal segment is the shortest, and the following become gradually less transverse, with the sides rather strongly rounded, the seventh and eighth being almost orbicular ; the ninth segment is very narrow and cylindrical, and bears a very long anal appendage twice its length, which becomes broader towards apex, and two cerci ; of these latter the first joint is clavate at apex, and three times as long as the second ; the antennæ are very short, and the legs are uneven, the first pair being the shortest ; the chief character, however, is found in the setæ, which are simple on the head and thoracic segments, but on the abdominal region and the cerci are distinctly clavate at apex, like pins on a pincushion : this latter character appears also to be found in larvæ of other species of *Quedius*, but I do not know whether it is at all characteristic of the genus ; in *Felleius* the setæ are all simple.

The larvæ of *Q. rufipes* and its allies appear to have the body much narrowed and contracted behind the head, and the abdomen rather widened with sides somewhat rounded. The pupæ of *Quedius* have the "styli motorii" filiform and, in some species at all events, only present on the anterior margin of the thorax, and the sides of the seventh and eighth segments of abdomen.

- I. Eyes small, occupying about one-third of the sides of the head ; labrum bilobed.

Section I., Sub-Gen. **Ediquus**, Muls. et Rey (p. 228).

II. Eyes moderate, occupying about one-half of the sides of the head ; labrum bilobed.

Section II., Sub-Gen. **Quedius**, i. sp. (p. 229).

III. Eyes large, occupying two-thirds of the sides of the head, but leaving an evident space between the base of eye and neck.

i. Labrum entire or almost entire ; shape almost parallel ; hind body scarcely narrowed behind.

Section III., Sub-Gen. **Microsaurus**, Steph. (p. 236).

ii. Labrum more or less bilobed ; shape fusiform ; hind body more or less narrowed behind.

Section IV., Sub-Gen. **Sauridus**, Muls. et Rey (p. 238).

IV. Eyes very large, occupying almost the whole of the sides of head, leaving hardly any space between base of eye and neck ; hind body narrowed behind.

Section V., Sub-Gen. **Raphirus**, Steph. (p. 242).

Section I. (Sub-Gen. **Ediquus**, Muls. et Rey.)

This section contains two species only, both of which are rare, one excessively so ; they occur almost exclusively in rotten wood, and are easily distinguished by their very small eyes.

1. Size large ; antennæ long, with all the joints longer than broad Q. LONGICORNIS, Kr.
2. Size small ; antennæ short, with joints 7-10 strongly transverse Q. MICROPS, Grav.

Q. longicornis, Kr. (*fulgidus*, var. 5, Er.). Pitchy black or brownish with the sides of thorax more or less obscurely lighter, and the apex of segments of hind body reddish testaceous, elytra reddish or reddish brown ; head oval, very finely shagreened, rather dull, with an obscure impression on forehead, antennæ ferruginous, rather long, with none of the joints transverse ; thorax somewhat narrowed in front, very finely shagreened like head, and rather dull, with setigerous pores on front of disc ; scutellum smooth ; elytra not longer than thorax, thickly and somewhat rugosely punctured ; hind body almost parallel-sided, narrowed at apex, rather strongly punctured, basal segments strongly impressed longitudinally at base ; legs ferruginous with the posterior, and sometimes the intermediate, tibiæ darker, posterior femora sometimes darker ; posterior tarsi with first joint slightly shorter than fifth. L. $8\frac{1}{2}$ – $9\frac{1}{2}$ mm.

Male with seventh ventral segment of hind body broadly emarginate at apex, with an impression before emargination, anterior tarsi strongly dilated ; female with seventh ventral segment rounded, tarsi less dilated.*

Under bark, in rotten wood, under stones, in flood refuse, &c. ; very rare ; Buddon Wood, Leicestershire, March 1882, under bark (W. G. Blatch) ; Bretby Wood, nea

* All the species of *Quedius* have the anterior tarsi more or less strongly dilated in both sexes.

Burton-on-Trent, one specimen taken by myself under the trunk of a tree lying on the ground; Scotland, very rare, Solway district (flood refuse, River Nith, Sept. 30, 1885 (Dr. Sharp; also taken by Mr. Douglas, of Orchardton)); recorded also doubtfully from the Clyde district.

Q. microps, Grav. (*chrysurus*, Kies.). Pitchy brown, with the head black, and the elytra usually lighter, castaneous, or reddish castaneous, shining; head moderately large, narrower than thorax; antennæ short, ferruginous or brownish, with the base lighter, penultimate joints strongly transverse; thorax about as broad as long, narrowed in front, slightly broader at base than elytra, with setigerous pores on front of disc; scutellum sparingly punctured; elytra subquadrate, about as long as thorax, rather finely and somewhat rugosely punctured; hind body rather strongly punctured, more sparingly towards apex, with the basal segments hardly impressed, pitchy, with a more or less distinct iridescent reflection, apex of segments more or less distinctly reddish testaceous; legs reddish testaceous, with the femora and posterior tibiæ sometimes a little darker in middle. L. $4\frac{1}{2}$ –5 mm.

Male with the seventh ventral segment of hind body broadly emarginate in middle of apical border, with a smooth triangular space before emargination.

In rotten wood (oak, ash, &c.); rare; Addington; Esher; Cobham; Chatham; Croydon; Loughton; New Forest; Nettlecomb, Somerset; Cambridge; Weston-super-Mare; Leicestershire; Hunstanton. The species was first found in Britain by Dr. Power.

Section II. (Sub-Gen. **Quedius**, i. sp.)

I. Thorax with two dorsal series each consisting of three punctures, one being close to anterior margin.

i. Elytra with uniform punctuation.

1. Scutellum punctured; hind body ferruginous . **Q. VENTRALIS**, Ar.
(*truncicola*, Fairm.).

2. Scutellum smooth.

A. Size large; upper surface entirely black; elytra with margins sharply testaceous . **Q. LATERALIS**, Grav.

B. Size moderate; elytra black, reddish, or pitchy, with margins not sharply lighter.

a. Antennæ with base dark, more or less ferruginous towards or at apex, often entirely dark;* legs black or dark pitchy red.

a*. Elytra black; antennæ moderate with joints 6–10 slightly transverse . **Q. MESOMELINUS**, Marsh
(*v. fageti*, Thoms.).

b*. Elytra red.

a†. Thorax with punctures on sides of disc, besides the usual one or two setigerous punctures close to margin.

* In somewhat immature specimens the antennæ are sometimes entirely ferruginous, but the base is never lighter than the apex, and is almost always darker.

- a†. Hind body at apex, and apex of segments, reddish; legs more or less pitchy red; antennæ with joints 6-10 less transverse; size moderate Q. FULGIDUS, F.
(*quadripunctatus*, Thoms.).
- b†. Hind body concolorous black; legs black with tarsi entirely red; antennæ with joints 6-10 more transverse; size smaller Q. PUNCTICOLLIS, Thoms.
- b†. Thorax without punctures on sides of disc except the usual one or two setigerous punctures near margin; size larger Q. BREVICORNIS, Thoms.
- b. Antennæ dark with base testaceous; legs testaceous.
- a*. Thorax impressed at sides especially in male; form broader; antennæ stouter; elytra usually bright red Q. CRUENTUS, Ol.
- b*. Thorax not impressed at sides; form narrower; antennæ more slender; elytra always pitchy black or brown Q. XANTHOPUS, Er.
- c. Antennæ and legs entirely reddish testaceous; elytra red with postero-external angles darker; size smaller Q. SCITUS, Grav.
- ii. Elytra with distinct rows of punctures; interstices almost smooth Q. CINCTUS, Payk.
(*impressus*, Panz.).
- II. Thorax with only one or two dorsal punctures on each side; elytra red; habitat exclusively in ants' nests Q. BREVIS, Er.

The species belonging to this section vary considerably in general appearance; with the exception of the *Q. fulgidus* group they do not present any particular difficulty; this group, however, has long been known as one of the most difficult in the whole of our Staphylinidæ, and as one concerning which there is most difference of opinion; Thomson (Skand. Col. ix. p. 159, *et seq.*) describes as five separate species five insects which by other authors have been considered races or varieties of *Q. fulgidus*, viz. two with black elytra (*Q. temporalis* = *mesomelinus*, Marsh, and *Q. fageti*), and three with red elytra (*Q. quadripunctatus*, *Q. brevicornis*, and *Q. puncticollis*). The original *Q. fulgidus* of Fabricius had red elytra (his description, Syst. El. ii. 596, is "*ater, nitidus, elytris plantisque testaceis, ano sub-ferrugineo*"), and is evidently identical with Thomson's *quadripunctatus*, which has the apex of the hind body and also the apex of the separate segments more or less reddish; the best plan, therefore, seems to be to limit *Q. fulgidus* to this form, which is the commonest of those with red elytra; *Q. puncticollis* is evidently a distinct species by reason of its smaller size, entirely black hind body, and the punctuation of the thorax; *Q. brevicornis* is larger and broader than either of the preceding, with a larger head, and with the penultimate joints of the antennæ very transverse, and without punctures on the sides of disc of thorax except the one or two usual large setigerous

punctures close to margin. The species with black elytra, *Q. mesomelinus* and *Q. fagei*, resemble *Q. brevicornis* as regards the punctuation of the thorax, but have the elytra more strongly punctured than that species; *Q. fagei*, however, is so closely allied to *Q. mesomelinus*, being only distinguished by its smaller size and the somewhat less close punctuation of the elytra (a character which is not very marked), that it is best to consider it as a variety only, especially as intermediate forms appear to occur. It is quite possible that exception may be taken to this arrangement of the several forms, but it appears to be the most convenient in the present state of our knowledge; Mulsant and Rey separate *Q. fulgidus* (= *Q. punctatus*) and *Q. ochripennis*, Mén., and *Q. assecla*, Rey (which are both synonymous with *Q. puncticollis*), on the punctuation of the sides of the disc of thorax, but in Dr. Sharp's collection there is an undoubted specimen of *Q. puncticollis* with the punctuation of the thorax according with their description of that in *Q. fulgidus*, so that the character cannot be always relied upon.

***Q. ventralis*, Ar.** (*truncicola*, Fairm.). Somewhat depressed, shining black, or dark pitchy black with the hind body more or less ferruginous; head large and subquadrate in male, rounder and smaller in female, very finely but visibly punctured, antennæ rather short, dark with the apex lighter, penultimate joints slightly transverse; thorax slightly narrowed in front, rather broader than elytra, base and posterior angles rounded, smooth except for the large punctures; scutellum punctured; elytra slightly longer than thorax, depressed behind near suture, rather strongly punctured; hind body narrowed behind, distinctly punctured, ferruginous with a more or less evident iridescent reflection; legs dark, with the last joint of the tarsi and sometimes the entire tarsi reddish. L. 9–11 mm.

Male with the seventh ventral segment of hind body broadly and semicircularly sinuate at apex.

In the damp decaying wood mould of hollow trees (elm, lime, oak, &c.), also in fungi growing on decaying trees; rare; Greenwich, Maidstone, Esher, Lee, Clapham, Mickleham, Weybridge, Croydon, Hampstead, Bearsted, Tonbridge; Winchester; New Forest; Sherwood Forest.

***Q. lateralis*, Grav.** A large, somewhat depressed species, entirely shining black, with the reflexed margin of the elytra sharply testaceous; head rather large, somewhat transverse, almost smooth; antennæ moderately long, lighter or darker brown with base reddish testaceous, penultimate joints longer than broad, last joint acuminate; thorax narrowed in front, rather broader behind than elytra, with base and posterior angles rounded, smooth and shining; scutellum impunctate; elytra about as long as thorax, strongly and asperately punctured; hind body strongly narrowed behind with sides slightly rounded, strongly and thickly punctured in front, more sparingly behind; legs pitchy with the knees and apex of tibiæ, and usually the whole tarsi reddish. L. 11–14 mm.

Male with the seventh ventral segment of hind body strongly and angularly sinuate in the middle of apical margin, with a broad smooth longitudinal impression before sinuation, sixth slightly sinuate.

In decaying fungi, dead leaves, old faggots, &c.; local, but not uncommon; London district, generally distributed; Dean Forest; Sherwood Forest; Scarborough; Northumberland district, rather rare; Scotland, widely distributed, in moss and decaying fungi; Solway, Tweed, Forth, Clyde, Tay, and Moray districts.

Q. mesomelinus, Marsh (*variabilis*, var., Gyll., *nitidus*, var., Grav., *temporalis*, Thoms.). Entirely black or pitch-black, shining; head more or less ovate narrower than thorax, antennæ moderate, reddish brown with the basal joints darker, penultimate joints slightly transverse if viewed from sides; thorax narrowed in front, entirely rounded behind, slightly broader than elytra, with the usual dorsal series of three punctures, but without extra punctures on sides of disc; elytra longer than thorax, obsoletely furrowed behind near suture, rather strongly and moderately thickly punctured; hind body feebly narrowed behind, more finely punctured than elytra, more or less iridescent; legs pitchy, or brownish red, with the tarsi and usually the knees lighter. L. 8–10 mm.

Male with the seventh ventral segment of hind body feebly, and the sixth scarcely visibly sinuate, with a small smooth space before the sinuations.

In rubbish-heaps, haystack refuse, moss, fungi, decaying trees, &c.; sometimes in cellars; common and generally distributed throughout the kingdom.

V. fageti, Thoms. (*Microsaurus fageti*, Thoms.). This variety is, as a rule, of a rather deeper black colour than the type, and is decidedly smaller; the punctuation of the elytra is a little more sparing, but deeper, and the furrows near suture are deeper and reach nearly to apex; the smooth spaces, also, before the sinuations at the apex of the sixth and seventh segments of the hind body in male are larger; the differences, however, seem hardly sufficient to allow of its being considered a distinct species. L. $6\frac{1}{2}$ –8 mm.

Under bark of decaying trees; not so common as the type, but apparently widely distributed in England and Scotland, and probably throughout the kingdom.

Q. fulgidus, F. (*bicolor*, Redt., *quadripunctatus*, Thoms.). Shining black with the elytra red, antennæ and legs brownish red or pitchy, apex of hind body and apical margin of segments more or less distinctly reddish, tarsi lighter than tibiæ but as a rule not markedly so with the exception of the last joint; the penultimate joints of the antennæ are only moderately transverse; in general structure and sculpture the species much resembles *Q. mesomelinus*; the thorax, however, has three or four punctures on the sides of disc arranged in a semicircular series; the elytra are said to be not longer than the thorax, and the basal joint of the posterior tarsi to be almost as long as the apical joint, but neither

of these points seem to be reliable characters, as they vary somewhat in different specimens. L. 8–9 mm.

In moss and rubbish and under stones, also about the stumps of trees: according to Thomson it is not rare in cellars and stables, and in Dr. Sharp's collection there is a specimen labelled as having been taken in a cow-house. Sheerness, Dulwich, Sheppy, Darenth, Ealing, Eltham; Cambridge; Buddon Wood; Sherwood Forest; Northumberland district; Scotland, Solway district, Eccles near Thornhill, &c.; Ireland, Rathkurby, near Waterford (Power); it is probably distributed over the greater part of the kingdom.

Q. puncticollis, Thoms. (*ochripennis*, Mén., *lætus*, Fald., *asserla*, Rey). Considerably smaller than average specimens of the preceding, with the elytra more brightly coloured and of a more yellowish red tinge; the hind body is unicolorous black and the legs are black with the tarsi entirely red; the penultimate joints of the antennæ are more strongly transverse; as a rule there are two punctures placed obliquely on each side of the disc of thorax besides the usual one or two setigerous punctures close to margin, but occasionally there are one or two more as in the preceding species: it is stated to differ from *Q. brevicornis* in having the frontal setigerous puncture situated far in front of the seta of the temporal angle, instead of their being placed almost in the same transverse line, and in having both the genal punctures placed above the elevated line instead of directly in it. L. 7–8 mm.

In haystack, flood, and other refuse; also by sweeping, and under bark of trees; London district, Mickleham, Croydon, &c.; Kingsgate; Ripon; Sherwood Forest; Scotland, Inverness-shire, Isle of Arran, &c.: it is probably very widely distributed, and apparently does duty in some collections for *Q. brevicornis*; it is, however, a much smaller and more brightly coloured species.

Q. brevicornis, Thoms. A large and conspicuous species, with the head large and subtransverse or subglobose, with very prominent temples which are not punctured; the antennæ are short with the penultimate joints very strongly transverse, and the thorax has the sides of disc without punctures except for the one or two usual setigerous punctures near margin; the elytra are coloured as in *Q. fulgidus*, and are sparingly and not strongly punctured; the legs are more or less pitchy red with the posterior tarsi rather short and stout. L. 10–11 mm.

Under bark or in frass of decaying trees, and apparently under no other conditions; rare; first taken in Britain at Mickleham by Dr. Power; Weybridge; Birdbrook, Essex, in a *Cossus*-infested tree; Kingsgate; New Forest; Ireland, near Waterford (Power): it has not yet occurred in Scotland; it appears to be extremely rare in France.

Besides the five forms allied to *Q. fulgidus* that have been just described, there appear to be two others, *Q. nigrocæruleus*, Rey, and *Q. variabilis*, Heer, which are referred as varieties in the catalogue of Heyden, Reitter, and Weise to *Q. quadripunctatus* and *Q. puncticollis* respectively as they agree with them in the punctuation of the thorax, &c.; neither of them has apparently occurred in Britain, but should either of

them be found a revision of the table above given will be necessary, as they both of them have dark elytra; *Q. variabilis* is common in France, and may perhaps be mixed in collections with *Q. mesomelinus*; there seem to be so many variations in the punctuation of the sides of the disc of thorax, and so much confusion has arisen from its having been adopted as always constant, whereas in certain cases it is plainly variable, in the same form, that it would perhaps be the best plan to disregard it altogether, in which case *Q. variabilis* and *Q. nigrocæruleus*, if not distinct, might be united with the *Q. mesomelinus* group instead of with the species with red elytra; it must, however, be admitted in conclusion that the colour is not always dependable, for a specimen of *Q. fulgidus* has been recorded by Herr Fuss (v. Ent. Ann. 1869, 29) which has one elytron red and the other dark.

***Q. cruentus*, Ol.** Shining black with the elytra and apex of hind body and also the margins of the segments reddish testaceous; head transverse or suborbicular in male, oval in female; antennæ somewhat thickened towards apex, blackish brown with the three first joints red, penultimate joints evidently transverse, last joint obliquely acuminate at apex; thorax narrowed in front and rounded behind; scutellum smooth or almost smooth, shining; elytra about as long as thorax, rather diffusely punctured; hind body narrowed from middle to apex rather thickly punctured in front, more sparingly behind, black, with the apex of sixth and the whole of the seventh segment brightly, and the intersections of the others more or less obscurely, testaceous; legs testaceous with the posterior coxæ usually dark. L. 7–9 mm.

Male with the seventh segment distinctly, and the sixth very feebly, sinuate in middle of apical margin, the former with a small smooth space before sinuation.

Under bark and in rotten wood of various trees; also in decaying straw and refuse, among dead leaves, under stones, and sometimes by beating; local; London district, rather common; Hastings; New Forest; Gloucester; Shrewsbury; Birmingham district; Tamworth; Repton; York; Manchester district; Northumberland district, "Long Benton; very rare;" it has not occurred in Scotland.

A variety occurs in which the elytra are pitchy black with the suture only lighter.

***Q. xanthopus*, Er.** Pitch-black or pitch-brown, shining, with the apex of the hind body and the apical margin of segments more or less distinctly testaceous or reddish testaceous; head short oval, antennæ moderately long and slender, brownish or brownish red with the first three or four joints lighter; thorax suborbicular, not or scarcely broader than elytra, with the sides, as a rule, obscurely lighter; scutellum smooth and shining; elytra a little longer than thorax, rather strongly furrowed behind near suture, not thickly but somewhat strongly punctured; hind body rather more finely and thickly punctured than elytra, more sparingly

towards apex, and almost smooth in middle of basal segment; legs testaceous. L. 7–8 mm.

Male with the seventh ventral segment of hind body broadly and very feebly sinuate in the middle of apical margin with a large smooth triangular space before the sinuation; anterior tarsi more strongly dilated than in female.

Under bark of dead trees; Scotland, Highlands, rare, Tay, Dee, and Moray districts (Braemar, Rannoch, &c.); New Forest; Mr. Blatch and Mr. Horner have taken it in Sherwood Forest; according to Mulsant and Rey it is found in France in lichens, moss, dead leaves, fungi, and old faggots, as well as in decaying trees.

From the dark variety of *Q. cruentus* the species is distinguished by its narrower form, longer antennæ, and by having only the margin of the seventh segment of hind body testaceous; it somewhat resembles small immature specimens of *Q. mesomelinus*, but may at once be known by the light base of antennæ and lighter legs, as well as by its narrower form and by not having the thorax impressed at the sides.

Q. scitus, Grav. A small and very distinct species which cannot well be confounded with any other; black, shining, with the elytra (except postero-external angles) and the apex of segments of hind body reddish testaceous; sometimes the elytra are entirely red, and occasionally the whole of the insect is reddish with the head and base of segments of hind body darker; head moderately large, narrower than thorax; antennæ rather long, entirely reddish testaceous, penultimate joints slightly transverse; thorax a little broader behind than elytra; elytra distinctly longer than thorax, somewhat diffusely and rather strongly punctured; hind body plainly narrowed towards apex, more finely and thickly punctured than elytra towards base, more sparingly behind; legs reddish testaceous. L. 6 mm.

Male with the seventh ventral segment of hind body as in the preceding species.

Under bark and in the damp wood mould of various trees; rare; Chatham, Cobham, Croydon, Richmond Park, Tonbridge (J. J. Walker, Champion, and Horner); Birdbrook and Loughton, Essex (Power); Ripon (Waterhouse); Sherwood Forest (Blatch and Horner); I have taken it in an old oak stump at Ulting, Essex, in company with *Q. fagei*, *Paromalus*, *Abraus*, &c.

Q. cinctus, Payk. (*impressus*, Panz., *marginellus*, Marsh). Somewhat depressed, shining black or pitchy black with the suture, apical margin and reflexed side margins of elytra reddish testaceous; head rather large, not much narrower than thorax; eyes black, variegated with grey; antennæ moderately long with penultimate joints distinctly transverse, entirely dark; thorax narrowed in front, rounded at base, not broader than elytra; scutellum smooth, shining; elytra about as long or slightly longer than thorax, very finely punctured, with three series of of from 7–8 pores besides the marginal series, one near suture, the second with the anterior punctures often wanting, and the third just before

shoulders; hind body narrowed behind, more or less iridescent, rather finely and not closely, but distinctly, punctured; legs black, with the tarsi and knees usually lighter. L. 6–8 mm.

Male with the seventh ventral segment of hind body much more thickly punctured than the preceding, broadly and evidently sinuate in the middle of apical margin with a smooth space before the sinuation, sixth ventral segment very slightly sinuate with a narrow smooth space before sinuation reaching the apex of the preceding segment.

In haystack refuse, dung-heaps, moss, &c.; also running on roads and pathways in early spring; common and generally distributed throughout the kingdom.

Q. brevis, Er. Somewhat oblong and parallel-sided, rather short and broad, shining pitchy black with the thorax often lighter, and the elytra, apex of hind body and apical margin of segments reddish testaceous; head somewhat transverse, rather large, antennæ moderate, entirely red, with the penultimate joints transverse, the tenth being a little longer than the preceding; thorax a little broader than elytra, narrowed in front, rounded behind, with the posterior angles very obtuse, with the usual series of three punctures on front of disc wanting, and replaced by one or two only; scutellum smooth or almost smooth; elytra transverse about as long as, or almost shorter than, thorax, sparingly and rather strongly punctured; hind body rather short, somewhat narrowed behind, more or less iridescent, rather finely, but distinctly, punctured; legs reddish testaceous. L. 5–5 $\frac{3}{4}$ mm.

Male with the seventh ventral segment of hind body broadly and angularly emarginate in middle of apical margin, with a smooth triangular space before the emargination, sixth segment slightly sinuate.

In the nests of *Formica rufa*, and rarely of *Formica fuliginosa*; local; Chatham, Plumstead, Erith, Hampstead, Bishops Wood, &c.; Glanvilles Wootton; Guestling, near Hastings; Parkhurst Forest, Isle of Wight; Bewdley Forest; Buddon Wood, Leicestershire; Tamworth; Scarborough; apparently rare further north; Scotland, very local, Dee district only (Braemar and Aviemore).

Section III. (Sub-Gen. **Microsaurus**, Steph)

This sub-genus comprises only three species, all of which are rather common, and are very easily distinguished from each other by the punctuation of the scutellum and of the forehead between eyes. *Q. molochinus* usually has the elytra reddish, and the variety with black elytra is uncommon and comparatively rarely met with; the close punctuation of the elytra will at once separate them from the species belonging to the preceding group.

- | | |
|--|-----------------------|
| I. Scutellum smooth | Q. FULIGINOSUS, Grav. |
| II. Scutellum punctured. | |
| i. Elytra always black; forehead with several punctures
between eyes | Q. TRISTIS, Grav. |
| ii. Elytra usually reddish, or reddish brown; forehead not
punctured between eyes | Q. MOLOCHINUS, Grav. |

Q. fuliginosus, Grav. (*tristis*, Gyll. *nec* Grav., Er., Thoms., &c.). Entirely black, shining; head large nearly as broad as thorax, suborbicular or short oval with several large punctures, arranged transversely, between eyes; antennæ moderately long, ferruginous, with the first joint sometimes lighter, penultimate joints not transverse; thorax narrowed in front, as broad or rather broader behind than elytra, with base and posterior angles rounded, and with two series of three punctures in each on front of centre of disc; scutellum smooth and shining, impunctate; elytra hardly as long as thorax, finely, thickly, and asperately punctured, rather dull; hind body long, somewhat parallel-sided, feebly narrowed behind, rather finely and not quite as thickly punctured as elytra; legs black, with the tarsi and knees reddish. L. 9–11 mm.

Male with the seventh and sixth segments of the hind body strongly and feebly sinuate in middle of apical margin respectively, with a smooth triangular space before the sinuations.

At roots of grass, in moss, dead leaves, vegetable refuse, old faggots, &c.; widely distributed throughout England and Wales, but not so common in the southern districts and Midlands as the following species; rarer further north; Scotland, Lowlands, Solway and Forth districts; Ireland, near Armagh.

Q. tristis, Grav. (*frontalis*, Er.). Extremely like the preceding, but at once distinguished by having the scutellum distinctly punctured; the elytra, too, are slightly longer, and the hind body is more iridescent and more closely punctured behind: Mulsant and Rey's distinction, that the forehead has six punctures transversely arranged between eyes (besides the juxta-ocular punctures), instead of four as in *Q. tristis*, is not to be depended upon, as some specimens have three on one side and two only on the other. L. 9–11 mm.

In moss, dead leaves, refuse, &c.; very common in the Midlands and southern districts of England; apparently not found hitherto in the northern counties of England, and rare in Scotland (Solway district)*; Ireland, Dublin, Armagh, Waterford, and probably common.

Q. molochinus, Grav. This species is closely allied to both the preceding, and does not need a separate description; as a rule it is easily distinguished by its reddish or reddish brown elytra, but apart from this character it may be at once distinguished from *Q. fuliginosus* by its punctured scutellum, and from *Q. tristis* by its shorter elytra, rather narrower form, and by having no punctures between the eyes except the ordinary juxta-ocular punctures; the elytra are very variable in colour, being black, brownish, reddish brown, or sometimes even reddish testaceous; in the male the fifth and sometimes the fourth ventral segments of hind body are furnished at apex with smooth spaces, as well as the sixth and seventh, the latter two being more or less strongly emarginate. L. 9–11 mm.

* It is recorded in Murray's catalogue as "common" in Scotland, but this appears to be in error.

At roots of grass, in moss, under stones, &c., in damp and marshy places ; common and generally distributed throughout the greater part of the kingdom ; the black variety has occurred at Southend, Ruspur near Horsham, and other places.

In Dr. Sharp's collection there is a variety with the elytra considerably longer than in the type and rather more brightly coloured ; it has occurred at Strood, Deal, and Lymington.

Section IV. (Sub-Gen. **Sauridus**, Muls. et Rey.)

The species belonging to this section are most of them moderate-sized dark pitchy brown insects ; *Q. picipes*, however, in size and colour somewhat resembles *Q. molochinus*, from which it may be distinguished by its more brightly coloured elytra and lighter legs ; *Q. nigriceps* is easily known by its general colour ; the three species *Q. fumatus* (= *peltatus*), *maurorufus*, and *umbrinus* are often confused, but may be separated without much difficulty by the sculpture of the elytra ; *Q. scintillans* is the smallest species, and is usually classed with *Q. boops* and *Q. auricomus* at the end of the genus ; apart, however, from the size of the eyes and other differences of sculpture, pubescence, &c., it may at once be known by the two large pores set transversely between the eyes at some distance from the juxta-ocular punctures. The section may be divided as follows:—

- I. First joint of posterior tarsi elongate, evidently longer than the last ; antennæ with all the joints longer than broad ; species larger with red or reddish elytra.
 - i. Thorax black ; elytra red *Q. PICIPES, Mann.*
 - ii. Thorax with sides broadly red, or entirely red ; elytra pitchy brown with sides lighter, brownish red, or red. *Q. NIGRICEPS, Kr.*
- II. First joint of posterior tarsi at most very slightly longer than last, and usually only as long or even shorter ; species as a rule smaller* with the whole upper surface pitch-black or pitch-brown, the elytra being sometimes lighter.
 - i. Forehead with no large punctures between eyes except the usual two near border of eyes ; antennæ more or less elongate.
 - 1. Elytra dull with the intervals of the punctures shagreened ; shape more fusiform ; thorax broader and more rounded at base, more narrowed in front *Q. FUMATUS, Steph.*
 - 2. Elytra shining with the intervals of the punctures smooth ; shape less fusiform and more parallel ; thorax less narrowed in front.
 - A. Elytra finely and more or less thickly punctured *Q. MAURORUFUS, Grav.*
 - B. Elytra more or less strongly and coarsely punctured.
 - a. Thorax and elytra pitchy black or brownish, concolorous *Q. UMBRINUS, Er.*
 - b. Thorax with sides often obscurely reddish ; elytra with margins and a humeral patch yellowish red *Q. SUTURALIS, Kies.*

* *Q. picipes* is a larger species than any of the others ; large specimens of *Q. peltatus*, however, often equal the smaller specimens of *Q. picipes*.

- ii. Forehead with two large setigerous punctures placed transversely between eyes besides the juxta-ocular punctures; antennæ rather short Q. SCINTILLANS, Grav.

Q. picipes, Mann. (*gracilicornis*, Heer, *variicolor*, Nord.). Black, shining, with the elytra bright red, and the hind body strongly iridescent; head rather large, almost as broad as thorax; eyes only slightly projecting; antennæ rather long, entirely red with the base often lighter, with all the joints longer than broad; thorax narrowed in front, about as broad as elytra, with two dorsal series of punctures in front of disc consisting of three in each about equally distant; scutellum smooth and shining; elytra hardly as long as thorax, thickly, finely, and somewhat rugosely punctured; hind body strongly narrowed behind, rather finely and thickly punctured towards base, a little less thickly behind, with rather long and not very close pubescence; legs reddish testaceous. L. 8–10 mm.

Male with the sixth and seventh segments of hind body feebly sinuate in middle of apical margins, with a smooth space (longitudinal in seventh segment) before each sinuation.

In moss, dead leaves, fungi, &c.; sometimes in decayed wood and on the branches of trees; rather common and generally distributed throughout the south of England and the midland counties; it appears to become rarer further north, and is not common in Scotland, Solway, Tweed, Forth, and Clyde districts.

Q. nigriceps, Kr. (*ruficollis*, Steph., *præcox*, Fauv.). Head black, thorax black or pitchy with the sides more or less broadly red, sometimes entirely red, elytra pitchy brown with the sides often lighter, or entirely reddish-brown or reddish, hind body pitchy, strongly iridescent, with the apex of the segments more or less broadly reddish; head nearly as broad as thorax, antennæ rather long and slender, ferruginous with the base lighter, with all the joints longer than broad; thorax narrowed in front, hardly as broad as elytra, with two series of punctures on each side of front of disc consisting of three in each; scutellum smooth and shining; elytra about as long as thorax finely, thickly, and somewhat rugosely punctured; hind body gradually and rather strongly narrowed to apex, finely and thickly punctured towards base, more sparingly behind; legs red with the posterior coxæ darker. L. $6\frac{1}{2}$ –8 mm.

Male with the seventh ventral segment of hind body plainly sinuate in middle of apical margin, with a small smooth impression before the sinuation; anterior tarsi more strongly dilated than in female.

In dead leaves; local, but widely distributed in England, and in Scotland as far north as the Moray district; it is not uncommon in the London district, but, as a rule, occurs very sparingly, and is rarer in the north; according to Mulsant and Rey it occurs chiefly in fallen pine needles and is sometimes taken by beating pines; it also has been taken in ants' nests; it appears to be a rare species in France.

Q. fumatus, Steph. (*peltatus*, Er., *præcox*, Heer *nec* Fauv.). Strongly fusiform, much narrowed behind, shining black or pitchy, with the elytra brownish, almost dull, hind body more or less iridescent; head considerably narrower than thorax, antennæ rather long and slender,

pitchy red with the basal joints sometimes marked with black, penultimate joints evidently longer than broad; thorax rather broader at base than elytra, suborbicular, strongly narrowed in front with the ordinary two dorsal series of three punctures on front of disc; scutellum smooth; elytra about as long as or a little longer than thorax, rather finely and thickly punctured with the intervals of the punctures shagreened, giving them a dull appearance; hind body narrower than elytra, strongly and gradually narrowed from base to apex, rather finely and not very closely punctured; legs reddish or pitchy red with the coxæ and posterior femora often darker. L. $6-6\frac{1}{2}$ mm.

Male with the seventh ventral segment of hind body rather deeply and angularly excised with a smooth oblong triangular space before the excision, sixth slightly sinuate with a small smooth space before sinuation; anterior tarsi more strongly dilated than in female.

In dead leaves; also under bark and in the trunks of old trees; somewhat local, but not uncommon, and widely distributed, in England; recorded by Bold as frequent in the Northumberland district; Dr. Sharp says that it is local in Scotland, among decaying beech leaves, Solway and Forth districts only.

Q. maurorufus, Grav. (*acuminatus*, Fairm., *modestus*, Thoms., *præcox*, Lac., Nord., Fairm., *nec* Heer et Fauv.). Less fusiform and more parallel-sided than the preceding, shining pitch-brown with the head and often the elytra darker; head narrower than thorax; antennæ rather shorter and thicker than in *Q. fumatus*, brownish or ferruginous with the first joint reddish testaceous, penultimate joints about as long as broad the thorax is not broader than elytra and not strongly narrowed in front, and the elytra are shining, thickly and somewhat rugosely punctured, but with the interstices smooth and not shagreened; the hind body is moderately strongly narrowed behind, rather finely and thickly punctured towards base, somewhat less thickly towards apex, more or less iridescent; legs reddish testaceous. L. $6-6\frac{1}{2}$ mm.

Sometimes the whole upper surface is pitchy red with the head black, or reddish testaceous with the head, disc of thorax, and base of segments of hind body darker; the sides of the elytra are usually lighter than the disc, and sometimes the suture is reddish.

Male characters much as in the preceding species, except that the seventh ventral segment is not so strongly excised and more sinuate.

In dead leaves, at roots of grass, &c., in marshy places; widely distributed and not uncommon throughout England; Scotland, not common, Solway, Tweed, and Forth districts; Bold also records it from Tain, Ross-shire.

Q. umbrinus, Er. (*maurorufus*, Gyll., Mann., Nord., *nec* Grav.). Of about the same size and shape as the preceding, pitchy black, shining, with the elytra brownish and the sides lighter; in examples from northern localities the whole upper surface is unicolorous pitchy black; it may be distinguished from both the preceding species by the much coarser punctuation of the elytra and by its rather shorter and thicker antennæ, of which the penultimate joints are evidently, although not

strongly, transverse; the sexual characters are much the same. L. 6-6½ mm.

In moss, under stones, &c., and also in rotten wood, especially in damp places; not common in England; Highgate; Birdbrook (Essex); Sydenham; Ilfracombe; Dudley; Bristol; Shewsbury; Repton; Manchester district; Northumberland district, rare, in woods; Scotland, common, Solway, Forth, Tay, Dee, Sutherland, and probably all the other districts; Ireland, Killarney.

This species appears to be chiefly found in wooded and hilly or mountainous districts.

Q. suturalis, Kies. (*marginalis*, Thoms., *humeralis*, Steph.). Pitchy-brown, shining, sometimes altogether or in part slightly reddish, with the head black, and the suture, posterior margin, and a longer or shorter humeral patch on elytra yellowish or reddish testaceous, as well as the apex of segments of hind body; sometimes the elytra are almost entirely testaceous; head rounded, narrower than thorax, antennæ rather long and slender, lighter or darker reddish-testaceous, with the base usually lighter, penultimate joints not transverse, about as long as broad; thorax narrowed in front, hardly as broad at base as elytra, with the usual series of three punctures on front of disc; elytra about as long as, or slightly longer than thorax, distinctly, rather thickly, and somewhat rugosely punctured (the punctuation differing somewhat in different specimens); hind body gradually and strongly narrowed behind, rather finely and not very closely punctured, except at the base of the first segments; legs testaceous. L. 6 mm.

In moss, dead leaves, &c.; local; London district, not uncommon; Chatham, Enfield, Lee, Eltham, Blackheath, Croydon, Putney, Mickleham, Loughton, Carshalton, Sanderstead; Dorking; Whitstable; Margate; Hastings; Littleington, Sussex; Repton; Leamington; Manchester district (Whatecote, Bowden, &c.); Northumberland district, rare; Scotland, Lowlands, rare, Clyde and Forth districts.

Q. scintillans, Grav. (*fuscipes*, W. C.). A small species, which might for some reasons be more advantageously classed with the next section, and is in some respects intermediate; the eyes, however, are decidedly less in size and less prominent than in *Raphirus*; shining black bronze, with the elytra lighter, and the hind body duller; head narrower than thorax, rounded, with two large punctures between eyes besides the juxta-ocular punctures; antennæ short and rather thick, pitchy-red or brownish with the first joint lighter, penultimate joints transverse; thorax about as broad as elytra, together with head very shining, sometimes obscurely greenish-bronze; scutellum smooth and shining, occasionally with two or three punctures; elytra a little longer than thorax, not closely and somewhat coarsely punctured; hind body rather strongly narrowed behind, finely and thickly punctured and rather dull, thickly pubescent, and more or less iridescent, with the apical margin of the hinder segments more or less obscurely brownish; legs testaceous with the coxæ and often the tibiæ, and base of femora, darker. L. 5. mm.

Male with the seventh ventral segment of hind body feebly and

angularly sinuate in middle of apical margin, with a narrow oblong smooth space (almost furrowed) before the sinuation.

In haystack and other vegetable refuse, dead leaves, &c. ; also under bark in damp places ; local, and much commoner in the south than the north ; London district, not uncommon ; Strood, Croydon, Mickleham, Putney, Reigate, Cowley, West Wickham, Maidstone, Bearsted ; Wicken Fen ; Littlington ; Winchester ; Hastings ; Hove, Brighton ; Needwood Forest, Staffordshire ; Knowle, near Birmingham (flying to light, W. G. Blatch) ; Atherstone ; Northumberland district, very rare ; Scotland, rare, Solway, Tweed, Forth, and Tay districts.

Section V. (Sub-Gen. **Raphirus**, Stephens.)

The species belonging to this section are characterized by their very large and prominent eyes ; six of them are found in Britain ; of these *Q. auricomus* is very distinct ; some of the others, however, present considerable difficulties, and require careful study ; we appear to possess one or two of the varieties, which, on the Continent, are regarded as distinct species.

- I. Scutellum smooth ; hind body with very distinct golden pubescence ; size small (habitat in moss in waterfalls and running streams) *Q. AURICOMUS, Kies.*
- II. Scutellum punctured and pubescent.
 - i. Head smaller, subovate or slightly orbicular, distinctly narrower than thorax at base ; thorax evidently narrowed in front.
 - 1. Elytra dark ; hind body dark, unicolorous with very thick and fine uniform pubescence.
 - A. Size larger ; elytra dull, scarcely, if at all, metallic *Q. RUFIPES, Grav.*
 - B. Size smaller ; elytra more shiny, evidently somewhat metallic *Q. ATTENUATUS, Gyll.*
 - 2. Elytra rather bright bronze, often yellowish ; hind body clothed with somewhat variegated grey pubescence, which often appears to be arranged more or less in lines *Q. SEMIÆNEUS, Steph.*
 - ii. Head larger, subtransverse, almost, if not quite as broad as thorax at base ; thorax scarcely at all narrowed in front.
 - 1. Thorax red or pitchy red ; size larger *Q. FULVICOLLIS, Steph.*
 - 2. Thorax dark ; size smaller *Q. BOOPS, Grav.*

The males in this section have the seventh ventral segment of hind body broadly, angularly, and rather deeply emarginate at apex, with a rather long triangular smooth space (sometimes almost furrowed) before the emargination ; the sixth segment is almost always simple ; the anterior tarsi are considerably more strongly dilated in the male than in the female.

***Q. auricomus*, Kies.** (*tomentosomaculatus*, Cor.). Moderately narrowed in front and behind, but more parallel-sided than any of the allied species, shining black bronze, with the elytra often lighter, hind

body with patches of long golden pubescence on each side of the segments, presenting the appearance of interrupted lines stretching along each side of the whole hind-body; head large, eyes very large and prominent; antennæ entirely testaceous, short, very slightly thickened, with the penultimate joints about as long as broad; thorax narrowed in front, almost broader at base than elytra, with the usual two dorsal series of three punctures in front; scutellum smooth and shining; elytra about as long as thorax, with the suture raised, especially behind, rather strongly and not thickly punctured; hind body rather long, finely and rather thickly punctured, and much duller than the front parts; under surface with golden pubescence; legs testaceous. L. 4-5 mm.

This species appears to occur only in damp moss wetted by running water, especially in waterfalls; very local, but often taken in numbers where it occurs; not recorded from the London district or the south of England: Barmouth, Llangollen, and other localities in Wales; Matlock; Northumberland district, banks of Irthing, very rare; Scotland, local, Solway, Tweed, Clyde, and Tay districts.

Q. rufipes, Grav. (*semiobscurus*, Marsh, *nec* Er.). Rather strongly narrowed in front and behind, head and thorax shining black, elytra and hind body dark, duller than the front parts, the latter with thick uniform greyish pubescence; head subovate, evidently narrower than thorax at base; antennæ moderately long and rather slender, entirely testaceous or reddish testaceous, with the penultimate joints as long as broad in female, slightly longer in male; thorax as broad, or apparently a little broader than elytra, strongly narrowed in front, with the usual two dorsal series of three punctures in each on front of disc; scutellum pubescent, thickly and finely punctured, dull; elytra about as long as thorax, finely and closely pubescent, and very finely punctured or shagreened; hind body gradually and strongly narrowed behind, very finely and thickly punctured, more or less iridescent; legs reddish testaceous, with the posterior coxæ darkened. L. 6-7 mm.

In moss, dead leaves, haystack refuse, &c.; widely distributed and rather common in the south of England, London district, and Midlands; rarer further north; Northumberland district, sea-coast near Hartley and South Shields, not common; Scotland, Lowlands, Solway and Forth districts only; Ireland, near Dublin and Waterford.

Q. attenuatus, Gyll. Considerably smaller than the preceding species, which it very closely resembles in form and general appearance; black or dark pitchy black, with the elytra slightly but evidently metallic,* hind body rather dull and clothed with a uniform dull greyish pubescence; head suborbicular, evidently narrower than thorax at base; antennæ entirely testaceous, a little more thickened than in the preceding species, with the penultimate joints subtransverse; thorax as in *Q. rufipes*; elytra slightly shorter, more shining, more metallic, and a little

* In continental specimens the elytra appear sometimes to be entirely brownish red or even red.

more distinctly sculptured; hind body strongly narrowed behind, very finely and thickly punctured; legs testaceous, posterior coxæ darker. L. 5–6 mm.

In moss, flood refuse, dead leaves, &c.; generally in marshy places; local; London district, not uncommon, Croydon, Gravesend, Wimbledon, Barnes, Egham, Tonbridge, &c.; Hastings; Tewkesbury; Coleshill and Knowle, near Birmingham; Repton; Scarborough; Manchester; Northumberland district, not uncommon; Scotland, Lowlands, common, Solway, Forth, and Tay districts.

V. picipennis, Heer (*nec* Scriba). Somewhat less fusiform than the type, almost subparallel, with the head larger and the hind body less narrowed behind; head more transverse, and almost as broad as thorax at base; thorax less narrowed in front with the anterior angles usually pitchy red; elytra shorter and slightly less finely punctured; hind body rather duller and less iridescent; posterior tarsi a little shorter.

In Dr. Sharp's collection there is a long series of this variety, all from Scotland; it is considered by Mulsant and Rey and others to be a separate species; as, however, these authors say of it "*Elle ressemble infiniment à l'attenuatus*," and as *Q. attenuatus* seems to present several shades of gradation of colour and length of elytra, it appears best to leave it for the present as at most a constant variety.

Q. semiæneus, Steph. (*semiobscurus*, Er. *nec* Marsh, *proximus*, Kr.). Very closely allied to the two preceding species, but distinguished by its light-coloured elytra which are bright bronze or yellowish, and especially by the pubescence of the hind body which is greyish, very thick and close, and often presents the appearance of being arranged in lines or patches; at the base of segments 2–4 there are two or three impressed dark velvety patches which are sometimes rather obscurely marked; it is smaller than *Q. rufipes*, with the antennæ a little shorter; the sculpture of the elytra and hind body is very fine, evidently finer than in *Q. attenuatus*, and resembling that of *Q. rufipes*. L. 5–6 mm.

In moss, haystack refuse, &c., often under stones: it is often found by the sea at the roots of long grass or rushes not far from the shore; London district, rather common, Lee, Barnes, Dulwich, Wimbledon, Gravesend; Lowestoft; Hunstanton; Deal; Kingsgate; Shipley, near Horsham; Hastings; Weymouth; Swansea; Birmingham district; Cannock Chase; Shrewsbury; Needwood Forest; Liverpool; Manchester; Northumberland district, chiefly on the sea-coast, not uncommon; Scotland, local, Lowlands, Solway district; Ireland, near Waterford.

Q. fulvicollis, Steph. Of about the same size as the preceding, sometimes a little smaller; head large, almost as broad as thorax at base, black, shining; antennæ entirely testaceous, moderately long, with penultimate joints longer than broad in male, about as long as broad in female; thorax reddish testaceous, pitchy red or pitchy brown, not so much narrowed in front as in the two preceding species; scutellum punctured and pubescent; elytra about as long as thorax, brownish or reddish-brown, usually slightly metallic, finely and rugosely punctured, the punctuation being intermediate between that of *Q. attenuatus* and

Q. semicaneus; hind body gradually and rather strongly narrowed behind, more or less iridescent, very thickly and finely punctured and pubescent, the pubescence being uniform; legs testaceous, with femora and posterior tibiæ usually, in part at least, darker. L. 5-6 mm.

In moss, vegetable refuse, flood rubbish, &c.: a northern species; rare in England; Constantine, near Preston Marsh, Lancashire; Northumberland district, in woods; Scotland local and not common, although rather widely distributed; in damp moss, Lowlands and Highlands, Solway, Tweed, Forth, Clyde, Tay, and Moray districts; recorded by the late Mr. W. Garneys from Repton, near Burton-on-Trent, but it is possible he mistook for it a variety of *Q. attenuatus*, which is common in that locality; the species is easily distinguished by its somewhat stout form, large head, and usually red thorax.

Q. boops, Grav. The smallest of all the British species of the genus; shining black, with the elytra often brownish; elytra and hind body clothed with rather scanty greyish pubescence; head very large with eyes very large and prominent, about as broad as thorax at base; antennæ entirely testaceous, scarcely thickened towards apex, with penultimate joints longer than broad in male, about as long as broad in female; thorax scarcely narrowed in front; scutellum sparingly punctured and pubescent; elytra about as long as thorax, moderately strongly and somewhat rugosely punctured, shining pitchy black or pitchy brown; hind body more or less strongly narrowed behind, scarcely iridescent, finely and thickly punctured, more sparingly on centre and at apex of each segment; legs testaceous, with the posterior coxæ, and sometimes the posterior femora and intermediate and posterior tibiæ, darker. L. 4-4½ mm.

In haystack and other vegetable refuse, in moss, at roots of grass in marshy places, under stones, &c.; common and generally distributed throughout the kingdom.

QUEDIONUCHUS, Sharp.

This genus has been formed by Dr. Sharp (*Biologia Cent. Am. Staphylinidæ*, p. 336) to include several Central American species, some undescribed Japanese forms, and our well-known *Quedius lævigatus*; one of its chief characters lies in the strongly spined posterior femora; in some of the exotic species these spines are abnormally long; Dr. Sharp says that "the genus is of interest by the fact that it is the nearest approach made by the Quediina to the genus *Philonthus*; indeed in the form of the head, neck, and eyes, the obliterated margin of the genæ, and the less developed and less infolded side margins of the prothorax, it approaches very closely to some of the Staphylinina. Its nearest allies in the genus *Quedius* are *Q. impressus* and *Q. capucinus*. All the species of *Quedionuchus* are sub-cortical in their habits; and all of them have the usual diffuse punctuation of the wing cases absent, the surface being smooth (except at the lateral margins) and bearing only a few serial setigerous punctures."

Q. lævigatus, Gyll. (*lævipennis*, Duf., *longipennis*, Mann.). Depressed, somewhat parallel, shining black, with the elytra more or less

castaneous; head transverse orbicular, antennæ rather short, brownish with the three first joints red, joints 5-10 strongly transverse; thorax slightly transverse scarcely narrowed in front, with two oblique series in front, consisting of three punctures each, the hind ones approximate, and the others diverging from these; elytra longer than thorax, a little longer than broad, depressed near suture, quite impunctate, or furnished with two obsolete series of four punctures in each, one near suture, and the other near middle of disc; hind body somewhat parallel, finely and sparingly punctured, more sparingly behind, shining black, somewhat iridescent, with the greater part of seventh segment, and the apical margin of the preceding ones more or less broadly, testaceous; legs reddish testaceous, posterior femora strongly spined beneath. L. 7-8 mm.

Male with the sixth and seventh ventral segments of hind body slightly sinuate at apex, with a smooth triangular space before sinuation; anterior tarsi very strongly dilated.

Under bark of decaying Scotch fir; Scotland, Highlands, not uncommon, Tay, Argyle, Dee, and Moray districts.

STAPHYLININA.

Dr. Sharp (l.c. p. 370) defines this group as having the "superior line of the prothorax deflexed to the under surface at the front angle; inferior line not continued on to the front aspect of the thorax, and usually united with the superior line behind the prosternum." The antennæ are inserted on the anterior margin of the front, inside the base of the mandibles, but distant from each other; the head is usually large, especially in the male; the thorax is, as a rule, square or oblong, very seldom much narrowed in front, often thickly punctured, sometimes, however, punctured after a definite plan, as in *Philonthus*; the lateral margin appears to be double; the legs, as a rule, are rather short, and the tarsi are very often dilated, especially in the males; our genera may be distinguished as follows:—

- | | |
|--|------------------------------|
| I. Maxillary palpi with fourth joint shorter than third. | |
| i. Mesosternum not carinate; thorax transverse; intermediate coxæ plainly distant. | |
| 1. Intermediate and posterior tarsi not dilated; head and thorax glabrous | CREOPHILUS, <i>Mannh.</i> |
| 2. Intermediate and posterior tarsi somewhat dilated; head and thorax densely pubescent | EMUS, <i>Curtis.</i> |
| ii. Mesosternum carinate longitudinally; thorax subquadrate; intermediate coxæ moderately separated | LEISTOTROPHUS, <i>Perty.</i> |
| II. Maxillary palpi with fourth joint equal to, or longer than, third.* | |
| i. Ligula emarginate; metasternum terminating between the posterior coxæ in a slightly projecting emarginate or reflexed lobe. | |
| 1. Intermediate coxal cavities separated by mesosternum; hind body comparatively short | STAPHYLINUS, <i>Linné.</i> |

* *S. caesareus* and *S. erythropterus* appear to be exceptions; the character is not altogether a satisfactory one, but will in most cases be found practically useful.

- 2. Intermediate coxal cavities quite contiguous; hind body very long OCYPUS, *Er.*
- ii. Ligula entire; metasternum terminating between the posterior coxæ in a strongly projecting and deeply incised lobe.
 - 1. First joint of posterior tarsi as long as or longer than fifth joint.
 - A. Last joint of maxillary palpi slender and acute PHILONTHUS, *Curtis.*
 - B. Last joint of maxillary palpi flattened, elongate-oval, more convex on the inner side CAPIUS, *Steph.*
 - 2. First joint of posterior tarsi shorter than fifth joint, joints 1-4 decreasing gradually in length ACTOBIUS, *Fauvel.*

CREOPHILUS, Mannerheim.

In the Munich catalogue and Duvivier's supplement to the same sixteen species are enumerated as belonging to this genus; some of these, however, are varieties of other species, and, according to Dr. Sharp, the genus consists of eight or nine species, six of which are confined to the Antipodes and New Guinea, a seventh is found in South America, and the eighth is widely distributed in both the eastern and western hemispheres; this latter is our common species *C. maxillosus*, which appears to have become somewhat modified as it has spread more widely over the world; Fauvel unites *Creophilus* with *Emus*, but Dr. Sharp points out (*Biol. Cent. Am. Staphylinidæ*, p. 370) that this is wrong, as there are important differences in the thorax, which are corroborated by other minor distinctions.

C. maxillosus, L. A large, robust species, head and thorax black very shining, elytra black with a broad band of thick grey pubescence, third, fourth, and fifth ventral segments of hind body completely covered with long and thick greyish-white pubescence, which is more or less scattered over the upper surface, being more distinct at the sides of the fourth and fifth segments; head variable, sometimes very large, considerably broader than thorax and very transverse in male, with the mandibles much developed, in female more orbicular and narrower than thorax; antennæ black, short, clavate, with joints 7-10 very strongly transverse; thorax transverse, with disc quite impunctate, considerably narrowed behind; scutellum black; elytra transverse, a little longer than thorax, finely and thickly punctured with four or five large setigerous punctures on each; hind body somewhat rounded at sides, thickly and rugosely punctured; legs black. L. 16-19 mm.

Male with seventh ventral segment of hind body deeply and sharply excised in middle of apical margin.

In dead animals, birds, fish, &c., and offal generally; common throughout the kingdom.

The *var. ciliaris*, Steph., has the scutellum, apex of elytra, and margins of segments and apex of hind body clothed with golden

pubescence; it has usually been regarded as confined to the north, where it has occurred rarely in the Tweed, Clyde, and Argyle districts of Scotland, but I have a record from Mr. Champion of its occurrence at Deal.

EMUS, Curtis.

This genus contains three or four species, one occurring in New Guinea and another in Sumatra; our single species is extremely rare in Britain, and may be at once known by the peculiar appearance caused by the dense yellow and black pile with which it is clothed, which gives it rather the appearance of a large humble bee, especially when flying.

E. hirtus, L. A large and stout species, densely and rugosely punctured, clothed with thick pilose pubescence, rather dull velvety black, with the under side somewhat violaceous, the head, the greater part of thorax, the three last dorsal segments of hind body, and the sides of the fourth and greater part of fifth ventral segments clothed with very thick golden pile; the apical portion of the elytra is variegated with ashy pubescence; head variable in size; antennæ black, rather strongly thickened but not clavate, with joints 6–10 strongly transverse; thorax transverse narrowed behind, thickly and rugosely punctured with the central line raised, and not glabrous as in *Creophilus*; elytra scarcely as long as thorax; hind body feebly rounded at sides; legs black, pubescent. L. 18–24 mm.

Male with head much larger than in female, and with seventh ventral segment of hind body strongly sinuate in middle of apical margin; posterior trochanters with a strong curved hook, posterior tibiæ a little sinuate before apex.

In or about fresh cow-dung; sometimes on the wing; very rare; Sheerness (Haward); Chatham (Chaney); New Forest (G. Lewis): in the latter locality it appears to be found at intervals, and probably occurs there every year in small numbers. Curtis records it from the New Forest, Parley Heath, Beachamwell (Norfolk), Guildford, Coombe Wood (Surrey), and Devonshire.

LEISTOTROPHUS, Perty.

This genus comprises about fourteen species, which are widely distributed, some of them occurring in North America, India, Brazil, Japan, Java, &c.; there are two British species; a specimen of the North American *L. cingulatus* was taken by the Rev. H. Matthews in North Devon in 1874, but this was evidently an importation, as is remarked by the Rev. A. Matthews, who records it in Ent. Mo. Mag. xiv. 38.

1. Palpi and legs (except base of femora) red; size larger . . . *L. NEBULOSUS*, F.
2. Palpi and legs black; size smaller *L. MURINUS*, L.

L. nebulosus, F. Black, thickly punctured throughout, somewhat metallic, upper surface clothed entirely with a thick greyish-brown

or brownish pubescence, variegated with dark patches, so that the upper surface appears brown; head about as broad as thorax, transverse, antennæ with basal joints red, darker towards apex, penultimate joints moderately transverse; thorax about as broad as long, sinuately contracted behind, anterior angles prominent; scutellum velvety black with central line and anterior angles light; elytra a little longer and evidently broader than thorax; hind body narrowed behind with two longitudinal rows of large dark patches, presenting the appearance of cavities, which become obsolete or confused on the hinder segments; under side with silvery pubescence on chest and at base of each segment of hind body; legs reddish testaceous, with the coxæ, trochanters, and base of femora black. L. 13–18 mm.

Male with the seventh ventral segment of hind body angularly excised with the apex of angle membranous.

In carcases, dung, putrid fungi, &c.; often on the wing, especially on hot days in autumn; not uncommon, and widely distributed throughout the London, Southern, and Midland districts; not common in the North of England or in Scotland, although it occurs in various localities.

***L. murinus*, L.** Much smaller than the preceding, and rather more parallel-sided; it is easily distinguished by the black legs and palpi, and by the fact that the apex of the hind body has on its upper surface two bands of silvery pubescence, similar to that which is seen on the under surface in both species; the male characters of the hind body are much the same as in *L. nebulosus*. L. 10–12 mm.

In carcases, dung, &c.; often on the wing; commoner in some districts than the preceding, but in others not found so frequently; London district, common; Deal; Hastings; New Forest; Granvilles Wootton (abundant); Devonshire; Swansea; Knowle, near Birmingham; Cannock Chase; Repton, Burton-on-Trent; Liverpool (rare); Northumberland district “of very rare occurrence” (Bold); Scotland, common, Solway, Tweed, Forth, and Sutherland districts.

STAPHYLINUS, Linné.

There seems considerable difference of opinion as to the division of this genus; some authorities include *Ocypus* and all its sub-genera (*Tasgius*, &c.), while others (Thomson, Mulsant and Rey, &c.) divide it into three or four sub-genera; our six species, according to these latter, are to be referred to three genera, *Trichoderma* (to include *S. pubescens*), *Staphylinus*, containing *S. erythropterus* and *cæsareus*, and *Platydracus* comprising the other three: the first of these sub-genera does not appear to have much weight, but it is likely that the other two may have to be separated as distinct genera, in which case, as Dr. Sharp remarks, it will be better to apply Linné’s name of *Staphylinus* to the insects placed by Thomson under *Platydracus*, as they are much more numerous; *Platydracus* is separated from *Staphylinus* chiefly on the form of the head, which is always enlarged behind and narrowed in front, instead of being subquadrangular, and somewhat transverse, with

the angles rounded, and the sides parallel; in its widest sense the genus comprises upwards of two hundred species, which are widely distributed over the continental regions of the Old and New Worlds; there are only two European representatives of the genus *Staphylinus* as constituted by Thomson, both of which are British.

- I. Upper surface clothed with thick brown, somewhat variegated, pubescence; chest and under side of hind body covered with bright silvery white pubescence *S. PUBESCENS, De G.*
- II. Upper surface of head, thorax, and elytra cyaneous; under surface of hind body dark, with thin greyish pubescence *S. FULVIPES, Scop.*
- III. Upper surface black, elytra red; under surface of hind body with yellowish pubescence at base of segments only.
 - i. Head trapezoidal, narrowed in front; size smaller.
 - 1. Antennæ red, at least at base; head and thorax black, not metallic *S. STERCORARIUS, Ol.*
 - 2. Antennæ entirely pitchy; head and thorax bronzed *S. LATEBRICOLA, Grav.*
 - ii. Head subquadrangular, transverse, with angles rounded.
 - 1. Thorax unicolorous black; scutellum covered with yellow pubescence *S. ERYTHROPTERUS, L.*
 - 2. Thorax black with a narrow posterior border and two patches near anterior angles of yellow pubescence; scutellum black, except at front angles *S. CÆSAREUS, Ceder.*

S. pubescens, De G. (*Trichoderma pubescens*, Thoms.). Very like *Leistotrophus nebulosus* in size and general colouring, black, with the upper surface clothed with a somewhat variegated greyish-brown pubescence, under surface, especially of hind body, with thick close silvery pubescence; head bronzed, punctuation somewhat rugose, coarser on head and thorax than on the elytra and hind body; head about as broad as thorax, antennæ dark, variegated with testaceous, fourth joint subglobose, 6–10 transverse; thorax subquadrate, somewhat narrowed behind, where it is distinctly narrower than elytra; scutellum bronze with two large velvety black patches; elytra a little longer than thorax; hind body with a more or less distinct longitudinal band of yellowish pubescence running down the centre of upper surface; legs dark, femora with a rather broad testaceous ring just before apex. L. 11–13 mm.

Male with seventh ventral segment of hind body circularly sinuate in middle of apical margin with a triangular smooth space before sinuation.

In carcasses, hotbeds, &c.; local; London district, not common, Blackheath, Forest Hill, Belvedere; Hastings; Swansea; Sutton Park, Birmingham; Repton; commoner further North; York; Scarborough; Liverpool, common on Wallasey sandhills; Manchester; Hartlepool; Northumberland district; Scotland, common, Lowlands, Solway, Tweed, Forth, Clyde, Tay, and Moray districts; Ireland, near Belfast, Dublin (common), and Armagh.

S. fulvipes, Scop. (*Platydracus fulvipes*, Thoms.). A very distinct species, which may at once be known by the cyaneous colour of the head, thorax, and elytra, and the transverse bands of silvery-yellow pubescence

at the base of the sixth and seventh segments of hind body ; head hardly as broad as thorax, narrowed in front, thickly, and rather strongly punctured ; antennæ longer and more slender than in our other species of the sub-genus *Platydracus*, dark, with the first two or three, and the last one or two, joints red, penultimate joints slightly transverse ; thorax subquadrate, with anterior angles almost right angles and posterior angles rounded, thickly and rather strongly punctured ; elytra about as long as thorax, finely, thickly, and somewhat rugosely punctured ; hind body dull black, except for the bands of pubescence before referred to, finely punctured ; legs red, with coxæ dark. L. 12-14 mm.

Male with seventh ventral segment of hind body broadly and angularly emarginate in middle of apical margin, with the lateral lobes broadly truncate.

In moss, and at roots of grass, generally in chalky places ; rare ; Folkestone ; New Forest ; Scotland, very rare, Dee and Clyde districts : Mr. G. Lewis has taken it in larger numbers than any other collector, at any rate, of late years.

S. stercorarius, Ol. (*Platydracus stercorarius*, Thoms.). Black, with the elytra red, and the hind body above and below furnished with bands of silvery pubescence ; head and thorax thickly and rather strongly punctured, the former as broad as thorax, slightly narrowed in front, the latter subquadrate, with anterior angles almost right angles, and posterior angles rounded, with a more or less obsolete smooth central line ; antennæ ferruginous, or dark, with the three or four basal joints red, joints 7-10 strongly transverse ; elytra about as long as thorax, rather finely punctured ; hind body finely punctured, black, with a patch of silvery pubescence on each side of the basal segments, and two dentate bands of the same on the fifth and sixth segments, chest and segments of hind body at base with pubescence of the same character ; legs red, with coxæ dark. L. 12-13 mm.

Male with seventh ventral segment of hind body broadly sinuate with a smooth space before sinuation.

In carcases, dung, dung-heaps, &c., but mostly found on the wing or running in pathways ; not common, but very widely distributed ; Sheerness, Whitstable, Blackheath, Caterham, Putney, Addington ; Deal ; Hastings ; Glauvilles Wootton ; Isle of Wight ; Bournemouth ; Croyd, near Barnstaple, Devon ; Swansea ; Bristol ; Repton ; Matlock ; Hykeham, near Lincoln ; Lincoln ; Liverpool ; Holy Island ; South Shields (a fine series taken by Mr. Bold "in nest of a *Myrmica*") ; Scotland, local, Lowlands, Solway, Clyde, Tweed, Forth, Tay, Moray, and Sutherland districts.

S. latebricola, Grav. (*rupicola*, Kies., *Platydracus latebricola*, Thoms.). Very like the preceding in size, shape, and general appearance, but easily distinguished by having the head and thorax distinctly bronzed, and the antennæ entirely pitchy black ; the head and thorax are somewhat more coarsely punctured, and the pubescence of the hind body is less silvery, and somewhat yellowish, and also more sparing on the apical segments ; the ventral segments have each of them a band of pubescence more or less marked at base ; legs red, with all the coxæ,

and anterior trochanters, black; the male has the seventh ventral segment of hind body angularly emarginate and not sinuate. L. 12–13 mm.

In moss, under stones, &c., sometimes in company with *Formica rufa*; rare; Faversham, Caterham, Woking, Box Hill, Reigate; Hastings; New Forest (in moss at root of tree, and in sphagnum, May, 1886); Plymouth (C. G. Bignell); Llangollen; Bewdley Forest; Sutton Park, Birmingham; Northumberland district, very rare, "Twizell and Hetton Hall, Belford;" Scotland, very rare, Tweed, Tay, and Sutherland districts.

S. erythropterus, L. Dull black, with the elytra red, the front of the head, and the scutellum, clothed with golden pubescence, and the fifth, sixth, and seventh segments, and sometimes the second furnished with a patch of the same on each side; the apical ventral segments have also a band at base; head a little broader than thorax, thickly and rugosely punctured; antennæ red, with intermediate joints more or less obscure, sometimes only the two or three basal joints and the apical one being red, penultimate joints slightly transverse; thorax subquadrate, a little longer than broad, somewhat narrowed behind, where it is evidently narrower than elytra, anterior angles almost right angles, but blunt, posterior angles rounded, thickly and rugosely punctured, with an obsolete central raised line; elytra hardly as long as thorax, finely, thickly, and rugosely punctured; hind body more finely punctured than elytra, with sides somewhat rounded; legs red, with coxæ dark. L. 13–16 mm.

Male with the seventh ventral segment rather strongly, sixth very feebly, sinuate on apical margin.

Under stones, in moss, &c.; local; apparently commoner in Scotland and Ireland than in England; not recorded from the London district; New Forest (in sphagnum, May, 1886); Glanvilles Wootton; Devon; Swansea; Sutton Park; Cannock Chase; Repton; York; Scarborough; Manchester; Northumberland district; Scotland, Lowlands, common, Solway, Clyde, Tweed, Forth, Tay, Dee, Moray, and Sutherland districts; Ireland, Belfast, Dublin, Teelin Bay Donegal, Armagh (common), &c.

S. cæsareus, Ceder. Very like the preceding, but larger and easily distinguished by the dark scutellum, the patches of golden pubescence on the anterior angles of thorax and the hind border of the same, and the fact that each segment of the hind body, both dorsal and ventral, has a patch of pubescence of the same colour and character on either side, which is often obsolete on the apical segments, and is more pronounced on the basal ones; the thorax also is more square, and broader and more paralld-sided than in *S. erythropterus*; the sexual characters appear to be identical. L. 14–20 mm.

Under stones, clods of earth, &c., often on pathways and on the wing; not uncommon; commoner in the south than in the north, and apparently abundant in Ireland in some localities; London district, generally distributed; Hastings; Isle of Wight; Swanage; Instow, North Devon; Exeter; Birmingham district, but apparently rare in the Midlands; Liverpool (rare, J. W. Ellis); Manchester (general, at roots of trees, J. Chappell); Northumberland district (not of frequent occurrence, Bold); Scotland, local, Lowlands, Solway, Forth, Tay, and Argyle districts; Ireland, Dublin, Armagh, Belfast, &c.

OCYPUS, Erichson.

This genus comprises some of the largest and finest of the Staphylinidæ; it contains, at present, about eighty species, which are chiefly found in Europe and the parts of Africa and Asia adjacent; several, however, occur in Ceylon, Cuba, the Canary Islands, &c.: the differences between *Ocypus* and *Staphylinus* are very slight, and by some authors they are united; the genus, however, is so well known that it is better to keep it separate if possible; there are ten British species, which may be distinguished as follows:—

- I. Mandibles strong, with a tooth on the middle of their internal margin.
 - i. Last joint of labial palpi oblong-ovate, truncate or subtruncate at apex; last joint of maxillary palpi somewhat fusiform or cylindrical in both sexes.
 1. Anterior tibiæ more or less spinose on their external margin; head as broad as, or broader than, thorax; upper surface black or cyaneous; legs dark. (Sub-Gen. *Goerius*, Steph.)
 - A. Upper surface black.
 - a. Elytra as long as thorax; upper surface quite dull, extremely finely punctured; size very large *O. OLENS*, Müll.
 - b. Elytra shorter than thorax; head and thorax somewhat shining with punctuation close, but distinct; size moderate *O. SIMILIS*, F.
 - B. Upper surface cyaneous *O. CYANEUS*, Payk.
 2. Anterior tibiæ simply pubescent on their external margin; head narrower than, or at most only as broad as, thorax.
 - A. Legs red; upper surface black *O. BRUNNIPES*, F.
 - B. Legs black or pitchy.
 - a. Head and thorax black bronze, very shiny, the latter diffusely punctured; hind body without longitudinal lines of pubescence *O. FUSCATUS*, Grav.
 - b. Head, thorax, and elytra rather light bronze, the thorax very finely punctured; hind body with longitudinal lines of grey pubescence *O. CUPREUS*, Rossi.
 - ii. Last joint of labial palpi somewhat securiform in both sexes, of the maxillary palpi in male only. (Sub-Gen. *Tasgius*, Steph.)
 1. Legs red; elytra blackish-blue; head and thorax thickly punctured *O. PEDATOR*, Grav.
 2. Legs black; upper surface entirely black; head and thorax not closely punctured, very shiny *O. ATER*, Grav.
- II. Mandibles rather slender, not toothed on their internal margin. (Sub-Gen. *Anodus*, Nord.)
 - i. Legs black; head and thorax somewhat shining, finely, but distinctly punctured, with smooth central line evident *O. MORIO*, Grav.
 - ii. Legs red; head and thorax dull, very finely and closely punctured, with smooth central line often scarcely traceable *O. COMPRESSUS*, Marsh.

The larva of *Ocypus olens* has been described by several authors ; it is large and rapacious, with the head broader than thorax, slightly narrowed before neck ; the mandibles are very large and powerful ; antennæ short ; prothorax trapezoidal, somewhat broader at base than long, longer than either the meso- or meta-thorax ; hind body with the second segment the broadest, and from thence gradually narrowed ; the ninth segment is the narrowest, and is furnished with an anal appendage of about twice its length, and two cerci of which the second joint is much shorter than the first ; the legs are rather short ; the colour of the larva is pale yellowish, with the head black or reddish black, the scutum of the prothorax castaneous, usually with pale markings, the scuta of the meso- and meta-thorax pale ferruginous, with darker markings, or darker with light markings, and the scuta of the hind body paler with minute dark specks.

The larva of *Creophilus maxillosus* is distinguished from that of *Ocypus olens* by its orbicular head which is not broader than the thorax and is bistrate on the vertex, and by the cerci having the second joint not much shorter than first ; the clypeus also is armed with seven teeth (instead of nine as in the latter species), and the several pairs of legs are more even in length ; the pupa is rather long and has a row of setiform "styli motorii" on the anterior margin of prothorax, but no others except one at each side of the seventh and eighth abdominal segments : in several of the pupæ of the Staphylinina lateral "styli motorii" are present on all the segments of the abdomen, but none are ever present on the disc.

O. olens, Müll. (*Goerius olens*, Steph.). Very large, broad, and robust, winged, entirely dull black, with dark pubescence, the whole upper surface extremely closely, finely, and somewhat rugosely, punctured ; head transverse, subrectangular, as broad as, or broader than, thorax ; antennæ moderate, black with apical joints lighter, the penultimate joint much shorter than the preceding, but scarcely transverse, the last joint short, obliquely emarginate ; thorax subquadrate, with sides slightly rounded, almost parallel ; elytra about as long as thorax ; hind body with sides somewhat rounded, a little narrowed towards base. L. 20–28 mm.

Male with the seventh ventral segment of hind body feebly, and the sixth segment very slightly, sinuate on their apical margins.

Under stones, clods of earth, vegetable refuse, &c. ; very common and generally distributed throughout the kingdom ; it is one of the beetles that are best known to people who are not entomologists, as it is often seen running on pathways, and sometimes even in houses in summer ; when alarmed it opens its jaws and erects its hind body and assumes a menacing attitude, and it has the power of inflicting a somewhat sharp bite with its powerful mandibles : it is popularly known as the "Cock Tail" or "Devil's Coach Horse," the latter name, I believe, having its origin in an old mediæval legend concerning the insect.

O. similis, F. (*nitens*, Schrank, *abbreviatipennis*, Aubé, *decurtatus*

Muls. et Rey). Much smaller than the preceding, apterous, black, elytra and hind body dull, head and thorax more shining; head subquadrate, a little transverse, as broad as, or a little broader than, thorax, thickly, but distinctly, punctured; antennæ moderate, black, with apical joint or joints more or less obscurely lighter, penultimate joints not transverse; thorax subquadrate, as broad as elytra, thickly and distinctly punctured with a fine, narrow, smooth, and somewhat raised longitudinal central line; elytra transverse, evidently shorter than thorax, dull black, finely, thickly, and somewhat rugosely punctured; hind body dull with fine and somewhat asperate punctuation; legs black. L. 13–18 mm.

Male with the seventh ventral segment of hind body strongly and angularly excised, the sixth slightly sinuate, in middle of apical margins; last joint of maxillary palpi thick, as broad as apex of penultimate joint in male, more slender and narrower in female.

At roots of trees, under stones, in moss, &c.; local; Reigate, Hampstead, Caterham, Kingsgate, Birchington near Ramsgate, St. Peter's (Kent), Tonbridge; Folkestone; St. Leonards; Shoreham; Brighton; Colchester; Northumberland district, rare, near Newcastle; somewhat common near Lanercost (Bold); Ireland, near Dublin, local; it has not been recorded from Scotland: it is rather strange that there are no records from districts between the south-eastern and the northern counties; the species must probably occur in intervening localities.

O. similis rather closely resembles large specimens of *O. morio*, but apart from the toothed mandibles (a character not always visible in set specimens) it may be distinguished from the latter species by its rather longer and less transverse head, and evidently shorter elytra.

O. cyaneus, Payk. (*ophthalmicus*, Scop.). Intermediate in size between the two preceding species, winged, under surface shining black, upper surface of head, thorax, and elytra rather brightly cyaneous, the latter being duller than the other parts; the upper side of hind body is dull black; head subquadrate, about as broad as thorax, together with the latter thickly but distinctly punctured; antennæ rather long, black with apex often lighter, penultimate joints not transverse, the last joint short, obliquely emarginate (this latter character is more or less evident in all the species); thorax subquadrate with central raised line more or less obsolete; elytra about as long as thorax, finely, very thickly, and rugosely punctured; hind body finely and somewhat asperately punctured; legs black. L. 16–20 mm.

Male with the seventh ventral segment of hind body distinctly and broadly, the sixth hardly, sinuate on apical margins.

Under stones, logs of wood, &c.; very rare; Folkestone; Colchester (Harwood); Norwich; Sherwood Forest (Rev. H. Matthews); Newark-on-Trent; in this latter locality several specimens have been taken by Mr. Hadfield of Newark; the species is common in France.

O. brunnipes, F. Apterous, head and thorax shining black, elytra and hind body dull black; head somewhat orbicular, with angles rounded, rather broader than long, about as broad as thorax, sparingly punctured

in front, thickly behind; antennæ rather long, dark, with the base reddish, and the last two or three joints testaceous, penultimate joints not transverse; thorax subquadrate, thickly, but very distinctly punctured, with a fine smooth longitudinal central line; elytra transverse, evidently shorter than thorax, finely, very thickly, and rugosely punctured; hind body thickly and somewhat asperately punctured; legs red with coxæ darker. L. 12–15 mm.

Male with seventh ventral segment of hind body slightly sinuate in middle of apical margin; last joint of maxillary palpi as thick as the penultimate and truncate in male, narrower and subtruncate in female.

In moss, flood refuse, &c.; rather local, but widely distributed, and not uncommon; London district, not uncommon; New Forest; Hastings; Glanvilles Wootton; Soham, Cambridge; Midland districts, very generally distributed; Yorkshire; Liverpool; Northumberland district; Scotland, local, Lowlands, Solway, Tweed, Forth, Clyde, Tay, and Dee districts; Ireland, near Belfast, and Galway, &c.

O. fuscatus, Grav. A very distinct species, which is easily distinguished from all the others by its black-bronze appearance and the peculiar sculpture of the thorax; winged, head and thorax very shining black bronze, elytra black, dull, with a slight bronze reflection, hind body black; head somewhat orbicular, a little narrower than thorax, sparingly punctured on disc, more thickly at sides, very thickly behind eyes; antennæ black, with apex sometimes lighter, penultimate joints not transverse; thorax subquadrate, with a double punctuation, consisting of small and very fine punctures, and larger ones irregularly scattered over the whole surface, except on a broad smooth longitudinal central space; elytra very finely, thickly, and subrugosely punctured; hind body very thickly, finely, and somewhat asperately punctured; legs black, with the tarsi, and sometimes the tibiæ, pitchy red. L. 12–15 mm.

Male with the seventh ventral segment of hind body slightly sinuate in middle of apical margin.

In dry dung, moss, under stones, &c.; also in fungi on elms, &c.; scarce, but very widely distributed; London district, rare, Putney, Hammersmith, Walton-on-Thames, Tonbridge, Margate; Hastings; New Forest (in some numbers); Lincoln; Liverpool district; Clifton, near Manchester; flood refuse, Ouse, Yorkshire; Northumberland district, occurs sparingly in several localities; Scotland, scarce, Lowlands, Solway, Tweed, Forth, and Tay districts.

O. cupreus, Rossi (*æneocephalus*, De G.). Winged, head and thorax shining bright bronze, elytra of the same colour, but rather duller, hind body more obscurely bronze; head and thorax very closely punctured, the former somewhat orbicular, narrower than thorax, the latter somewhat oblong with a smooth longitudinal central space, on each side of which, among the fine punctures, is a row of some seven or eight large punctures; antennæ red with the middle joints sometimes darker, or fuscous with red base, penultimate joints about as long as broad, the tenth slightly transverse; elytra as long as thorax, together with hind body very closely and thickly punctured; hind body gradually narrower behind with five

longitudinal rows of greyish pubescence, of which the dorsal line is the most conspicuous; the segments are also furnished with large, well-marked, setigerous pores; legs black with the tibiæ and tarsi pitchy red. L. 10–14 mm.

Male with the seventh ventral segment of hind body very slightly sinuate in middle of apical margin, with a smooth angular space before sinuation.

Under stones, in moss, &c.; common and generally distributed throughout the kingdom.

O. pedator, Grav. (*Tasgius rufipes*, Curt.). A large, but not broad, elongate species, winged, black, rather shining, elytra with a distinct bluish tinge; head suborbicular, not quite as broad as thorax, rather strongly and thickly punctured with the interstices furnished with smaller punctures, hinder part rugose; antennæ red, often darker in middle, with penultimate joints not transverse; thorax subquadrate, punctured like disc of head; elytra about as long as, or rather shorter than, thorax, very thickly and rugosely punctured; hind body long, parallel-sided, narrowed before apex, finely, thickly, and asperately punctured; legs lighter or darker red, with the coxæ, and rarely the femora, pitch-black. L. 18–24 mm.

Male with the seventh ventral segment of hind body slightly sinuate in middle of apical border; last joint of maxillary palpi thick and somewhat securiform in male, normal and somewhat narrowed at apex in female.

Under stones, clods of earth, moss, &c.; rare; Dulwich; Southend; Folkestone; Brighton; recorded by Curtis and Stephens from Dover (1831), and Spitchwick, Devon.

O. ater, Grav. (*Tasgius ater*, Thoms.). Rather smaller than the preceding, winged, elongate, and parallel-sided, shining black, with the elytra and hind body duller; head and thorax sparingly and rather strongly punctured, more thickly towards sides, the former more transverse than in the preceding species, and the latter with sides straighter; antennæ black with apex more or less obscurely reddish or reddish with base darker, penultimate joints not transverse; elytra slightly longer than thorax, thickly and rugosely but distinctly punctured; hind body long, thickly and somewhat asperately punctured; legs black or pitch-black, with the tarsi and sometimes the tibiæ lighter. L. 13–17 mm.

Male with the seventh ventral segment of hind body broadly and distinctly sinuate in middle of apical margin; last joint of maxillary palpi rather thick and somewhat securiform in male, cylindrical in female.

Under stones, clods of earth, &c.; usually in muddy places on or near the coast, where it is not uncommon in some localities; it is very rare inland; Gravesend, Sheerness, Whitstable, Greenwich, &c.; Wimbledon (Rye); Hastings; Eastbourne; Glanvilles Wootton (Dale); Exmouth; Westward Ho! on the burrows (common); Llangollen; Bristol; Isle of Man; Liverpool; Northumberland district, Tynemouth, Hartley, The Wansbeck near Seaton (in profusion); Scotland, rare, Forth district; Ireland, Galway, Rathmullen, Kilkeel, &c.

This species is easily distinguished from the other black species by its more linear and parallel form, and jet-black, shining, sparingly punctured head and thorax.

O. morio, Grav. (*edentulus*, Block, *Anodus morio*, Nord.). A very variable species as regards size, some specimens being twice as large as others; black, head and thorax moderately shiny, elytra and hind body dull; head rather transverse with angles rounded, rather broader than thorax, thickly and rather strongly punctured; antennæ black, lighter towards apex, with last joint sometimes testaceous, penultimate joints considerably longer than broad; thorax somewhat longer than broad, slightly narrowed behind, thickly and somewhat strongly punctured, with a smooth, fine, somewhat raised central line, effaced in front; elytra about as long as thorax very thickly and rugosely punctured; hind body finely, very thickly, and asperately punctured; legs black with the tibiæ and sometimes the tarsi dark pitchy red. L. 11–18 mm.

Male with seventh ventral segment of hind body slightly sinuate in middle of apical margin, with a small smooth space before sinuation.

Under stones, moss, &c.; common and generally distributed throughout the kingdom.

The only species that this could be confused with is *O. similis*, from which, apart from the more slender and toothless mandibles, it differs in its shorter and more transverse head and longer elytra, the latter being as long as thorax, instead of evidently shorter as in the latter species.

O. compressus, Marsh (*fulvipes*, Mots., *Anodus compressus*, Thoms.). This species is at once distinguished from all the others by its extremely fine punctuation and dull appearance, and the fact that the legs are entirely red, with the exception of the coxæ which are pitchy; the shape is much the same as that of *O. morio*, and it resembles that species in having no tooth on the internal margin of the mandibles; the elytra, however, are a little shorter in proportion to the thorax; the whole upper surface appears sometimes to have a slightly bluish or purplish reflection, which is apparently due to the effect caused by the extremely fine punctuation; the central smooth space of the thorax is often almost, if not quite, obsolete; the male characters are much as in the preceding. L. 13–15 mm.

Under stones, in moss, &c.; never common, but widely distributed; Lewisham, Forest Hill, Addington, Weybridge, Purley Downs, Mickleham, Wimbledon, Epping, Tilgate, Belvedere (in *Cossus* burrow); Colchester; Hunstanton; Eastbourne; New Forest; Exeter; Westward Ho!; Isle of Man; Liverpool; Scotland, Isle of Arran; one specimen taken by myself in August 1879; there is, however, no other record from Scotland, nor is it recorded from the northern counties of England, so it is evidently very rare in the north.

PHILONTHUS, Curtis.

This very large and almost universally distributed genus comprises at present upwards of six hundred species, some of which are found in widely separated regions, having been probably carried by commerce from one

place to another ; the genera *Hesperus*, *Cafius*, and *Actobius* are now considered distinct, having been separated off for several reasons, the chief perhaps being that they have the longer lateral seta of the thorax distant from the margin, instead of being situated close to or upon it : Dr. Sharp remarks that this character is very important, "because the seta, remaining as a fixed point at the outer side of the thorax, serves as a mark to indicate whether the lateral raised margin is deflexed to the underside of the thorax or not."

The species may be divided into sections according to the number of punctures in the two dorsal series of the thorax, as follows :—

- I. Dorsal series of punctures on thorax wanting, or consisting of one puncture only near anterior margin (p. 259).
- II. Dorsal series of thorax each consisting of four punctures (p. 261).
- III. Dorsal series of thorax each consisting of five punctures (p. 269).
- IV. Dorsal series of thorax each consisting of six punctures (p. 276).
- V. Dorsal series of thorax consisting of more than six punctures, more or less irregular (p. 280).

In very many cases one of the punctures is close to the anterior margin, and is situated at some little distance from the rest of the series ; at first sight, therefore, the series appear to consist of one puncture less than is really the case ; in fact for convenience sake it is almost better to regard Sections II., III., and IV., as possessing series made up of three, four, and five punctures respectively, these series being usually very plain on the disc of the thorax, and being situated in a straight line, whereas the puncture near margin is sometimes a little out of the straight line ; a comparison of one or two specimens will at once remove any difficulty or confusion.

The species of *Philonthus* are found in dung and all kinds of decaying matter, both animal and vegetable ; one or two occur under bark.

The larva of *Philonthus nitidus* is described and figured by Schiödte (l.c. Part ii. p. 109, fig. ix. 6) : the head is subquadrate, broader than prothorax ; the rest of the body, omitting the head, is slightly fusiform, being at its broadest about middle ; the prothorax is trapezoidal, narrowed in front, nearly as long as the meso- and meta-thorax together ; the first abdominal segment is very short, the second is the broadest, and from this the segments get gradually narrower ; the ninth bears an anal appendage and two cerci which are rather long, and have the second joint very slender and not much shorter than the first ; the antennæ are very short, and the legs are uneven, the first pair being the shortest. The larva is yellowish, with the head and the scuta of the front parts castaneous, and those of the hinder parts lighter, slightly fuscous ; the larva is usually found in dung.

The larvæ of *Philonthus æneus* and *decorus* and others differ very slightly from that of *P. nitidus* ; the pupæ resemble those of *Creophilus* in having the "styli motorii" setiform, but in the *Philonthi* they are found at the sides of all the abdominal segments as well as on the anterior margin of the thorax.

SECTION I.

Dorsal rows of punctures on thorax wanting, or represented by one puncture only near anterior margin.

- I. Head and thorax black bronze ; anterior tibiæ somewhat curved ; head very large in male, somewhat quadrate . . . *P. SPLENDENS*, *F.*

II. Head and thorax greenish bronze; anterior tibiæ straight or almost straight.

- i. Head somewhat quadrate, transverse, at least as broad as the thorax in male; elytra less thickly punctured . . . *P. INTERMEDIUS*, *Boisd.*
- ii. Head somewhat ovate, less broad in both sexes than the thorax; elytra more thickly punctured . . . *P. LAMINATUS*, *Creutz.*

***P. splendens*, F.** Shining black, somewhat depressed, sparingly pubescent, with the elytra brassy with a more or less distinct greenish reflection; head and thorax shining black-bronze, the former subquadrate, transverse, large, as broad as thorax in female, broader in male; antennæ black, moderately long, with penultimate joints transverse; thorax without dorsal punctures; scutellum large, rather thickly punctured; elytra about as long as thorax, rather strongly and asperately punctured; hind body rather finely and closely punctured throughout; legs black, tarsi pitchy, anterior tibiæ somewhat curved. L. 12–14 mm.

Male with head distinctly broader than thorax, and seventh ventral segment of hind body very deeply and sharply excised, the sixth being also much less deeply, but distinctly emarginate; the anterior tarsi are feebly dilated in the male, very slightly in female.

In dung; generally distributed in England and Wales, but not, as a rule, abundant; more local further north; Scotland, Solway district only; Ireland, near Belfast, Dublin, and Waterford.

***P. intermedius*, Boisd.** This species, as its name implies, is intermediate between *P. splendens* and *P. laminatus*; its head is shaped as in the former, but is rather smaller, and in colour it resembles the latter, except that the elytra are less distinctly green; the punctuation, moreover, of the elytra is finer than in *P. splendens*, but distinctly less fine and dense than in *P. laminatus*; the hind body is rather finely but not thickly punctured; legs black, anterior tibiæ straight. L. $9\frac{1}{2}$ – $10\frac{1}{2}$ mm.

Male with seventh ventral segment deeply sinuate or emarginate on apical margin, fifth segment prolonged in a broad plate which almost covers the sixth segment; anterior tarsi rather strongly dilated in male, moderately in female.

In dung, moss, &c.; local; London district, rather common, Chatham, Sheerness, Greenwich, Walton, Forest Hill, &c.; Hastings; Bewdley Forest; Repton; York; Liverpool; Manchester; Northumberland and Durham districts, very rare; Hartlepool (Hardy); Scotland, rare, Forth district only; Ireland, near Waterford (Power).

***P. laminatus*, Creutz.** Shining black with the head and thorax greenish bronze, and the elytra green, sometimes with a slightly bluish tint; it may be distinguished at once from the two preceding species by the much closer punctuation of the elytra; the head in both sexes is somewhat ovate and distinctly narrower than the thorax, and the latter is distinctly narrowed in front, which is not the case in either of the two preceding; the antennæ are a little longer and more slender than in *P. intermedius*, and have the penultimate joints a little less transverse, and the anterior tarsi are less dilated; the sexual characters do not differ materially from those of the last-mentioned species. L. $8\frac{1}{2}$ – $9\frac{1}{2}$ mm.

In dung, &c.; common and generally distributed throughout the kingdom.

SECTION II.

- Dorsal series of thorax each consisting of four punctures.
- I. First joint of posterior tarsi plainly longer than the last, about equal to the three following united.
- i. Head transverse, somewhat quadrate, at least as broad as thorax in male; thorax not or scarcely narrowed in front.
1. Elytra thickly punctured.
- A. Penultimate joints of antennæ transverse.
- a. Hind body thickly punctured; anterior tarsi of male strongly dilated; elytra bronze, brassy *P. ÆNEUS, Rossi.*
- b. Hind body more or less sparingly punctured; anterior tarsi almost simple in both sexes.
- a*. Elytra blackish bronze; antennæ plainly thickened towards apex with penultimate joints very strongly transverse *P. PROXIMUS, Kr.*
(*succicola*, Thoms.).
- b*. Elytra brassy bronze; antennæ slightly thickened towards apex with penultimate joints moderately transverse *P. ADDENDUS, Sharp.*
- B. Penultimate joints of antennæ not transverse *P. CARBONARIUS, Gyll.*
2. Elytra sparingly punctured, greenish or bluish bronze; anterior tarsi dilated in both sexes *P. ATRATUS, Grav.*
- ii. Head ovate, rather long, much narrower than elytra; thorax narrowed in front.
1. Legs dark.
- A. Fifth ventral segment of hind body in male prolonged over sixth; upper surface of front parts very shiny *P. SCUTATUS, Er.*
- B. Fifth ventral segment of hind body in male not prolonged.
- a. Upper surface of a more or less dull bronze colour, with hind body darker *P. DECORUS, Grav.*
- b. Upper surface black with elytra blackish or greenish bronze.
- a*. First joint of antennæ testaceous beneath *P. POLITUS, F.*
- b*. First joint of antennæ unicolorous.
- a†. Elytra very thickly punctured; size larger and broader; penultimate joints of antennæ transverse *P. LUCENS, Man.*
- b†. Elytra less thickly punctured; size smaller and narrower; penultimate joints of antennæ not transverse *P. VARIUS, Gyll.*
2. Legs testaceous or reddish testaceous.
- A. Thorax with lateral margins broadly testaceous *P. MARGINATUS, F.*
- B. Thorax unicolorous.
- a. Antennæ dark, with base testaceous; elytra shorter than thorax, reddish testaceous or brick-red *P. LEPIDUS, Grav.*
- b. Antennæ entirely dark; elytra as long as thorax, pitchy-black *P. ALBIPES, Grav.*
- II. First joint of posterior tarsi not or hardly longer than the last, not as long as the three following united.

- i. Anterior tarsi of male dilated; legs yellow-brown, femora darker *P. UMBRATILIS, Grav.*
- ii. Anterior tarsi simple in both sexes.
 - 1. Thorax black; elytra more or less plainly metallic.
 - A. Elytra closely punctured.
 - a. Size larger; apex of ventral segments of hind body reddish *P. CEPHALOTES, Grav.*
 - b. Size smaller; hind body unicolorous black *P. NIGRIVENTRIS, Thoms.*
 - B. Elytra rather sparingly punctured; forehead with a plain central depression *P. FIMETARIUS, Grav.*
 - C. Elytra very coarsely and sparingly punctured; forehead without distinct central depression *P. SORDIDUS, Grav.*
 - 2. Thorax and elytra pitchy brown, sometimes reddish, not metallic; elytra thickly punctured; antennæ, legs, and apex of segments of hind body reddish *P. FUSCUS, Grav.*

***P. æneus*, Rossi.** Shining black, with the elytra brassy; head large, transverse, subquadrate, broader than thorax in male, narrower in female; antennæ black, moderately long, with penultimate joints strongly transverse, black, with the basal joints sometimes lighter; thorax not contracted in front; elytra about as long as thorax, rather finely, thickly, and asperately punctured; hind body finely and thickly punctured; legs black, tarsi, especially the anterior ones, sometimes pitchy red, the latter strongly dilated in male. L. 9–12 mm.

Male with sixth ventral segment of hind body moderately, seventh segment strongly and deeply, excised on apical margin, the excision being furnished behind with a narrow membranous border.

In dung, fungi, moss, &c.; common and generally distributed throughout the kingdom.

In some specimens (perhaps immature) the legs and base of the antennæ are reddish, and the elytra are sometimes tinged with the same colour. In Dr. Power's collection there is a specimen of this sort from Ealing, and another has been referred to me by Mr. Billups.

***P. proximus*, Kr.** (*succicola*, Thoms., *carbonarius*, Er. and old collections *nec* Gyll.). Very like the preceding, but may at once be distinguished by the dark greenish or blackish metallic elytra, and by the less close punctuation of the hind body; in the male the seventh ventral segment of the latter is very deeply and sharply emarginate, with the sides and apex of the emargination furnished with a rather broad membranous border, which is narrower in *P. æneus*; the sixth segment is broadly sinuate. L. $9\frac{1}{2}$ –12 mm.

In putrid fungi, cut grass, and vegetable refuse generally; local and not common in the south, abundant in the north. London district, rather generally distributed but not common; Hastings; Swansea; Wicken Fen; Cannock Chase; Repton; Liverpool; Northumberland district; Scotland, abundant, Lowlands and Highlands; Ireland, near Waterford.

P. addendus, Sharp. Shining black, with the elytra bronze, brassy or with a more or less pronounced greenish reflection; head with the temples more punctured than in the preceding, as broad as thorax in male, plainly narrower in female; antennæ with the penultimate joints transverse, but not so strongly as in either of the two preceding species; the thorax also is slightly shorter and less visibly impressed at the sides; the elytra are more brassy than in *P. proximus*, and, together with the hind body, are punctured much as in that species; the male has the seventh ventral segment less deeply emarginate and the membranous space behind the emargination broader, and the sixth ventral segment shows very little trace of the sinuation which is very evident in the allied species. L. 10 mm.

In cut grass, dead leaves, &c.; rare; Coombe Wood, Surrey (Rye); New Forest (Power); Hastings (Butler); Repton, Burton-on-Trent (W. Garneys); Knowle, Sherwood Forest, and Wicken Fen (W. G. Blatch); Northumberland district (Bold); Scotland, very local, Solway, Forth, and Tay districts; Ireland, Killarney.

P. carbonarius, Gyll. (*nec* Er., *tenuicornis*, Muls. et Rey, *punctiventris*, Jans. Ent. Ann. 1863, 82, *nec* Kraatz). Shining black, with the elytra coloured as in *P. proximus* (*succicola*, Thoms.), which is the old *carbonarius* of Dr. Power's and other collections; from all the preceding species, however, it is easily distinguished by having the antennæ rather longer, with the penultimate joints not, or scarcely, transverse; the elytra are rather finely and thickly punctured, and the punctuation of the hind body is somewhat diffuse, but in these points it does not differ materially from the two preceding species; in the male the emargination of the seventh ventral segment of hind body is less deep, and there is hardly any smooth membranous space behind, and the sixth segment is quite entire; the head in both sexes is also smaller. L. $9\frac{1}{2}$ –11 mm.

In decaying vegetable matter, fungi, cut grass, haystack refuse, under moss, &c.; local; London district, not uncommon; Hastings; Repton; Tewkesbury; Birmingham district; Shropshire; Liverpool; Manchester; Northumberland district, rare; Scotland, local, not common, Solway and Forth districts.

Mulsant and Rey abolish Gyllenhal's *carbonarius*, on the ground that the insect described by him (Ins. Suec. ii., 319, 35) is not identical with this species; the name, however, is retained by Heyden, Reitter, and Weise.

P. temporalis, Rey = *punctiventris*, Kraatz *nec* Jans., an insect which has given rise to some confusion, appears not to be a British insect at all; it is rather closely allied to *P. tenuicornis*, Rey, but differs in its more coarsely punctured head and generally broader and more thick-set form, &c.

P. atratus, Grav. Somewhat narrower than the average specimens of the four preceding species, shining black, with the elytra black bronze with a bluish or greenish reflection; head somewhat orbicular, more subquadrate in male than in female; antennæ long with penultimate joints

longer than broad; thorax very shining, scarcely narrowed in front; elytra about as long as thorax, sparingly punctured; hind body rather finely and sparingly punctured; legs pitch-black, anterior tarsi dilated in both sexes. L. 7–8 mm.

Male with the seventh ventral segment of hind body deeply and angularly excised, the excision being furnished with a membranous border behind.

Under stones and moss in damp places; Notting Hill and Hampstead (Power); also recorded from Devonshire; it appears to be a rare species in France as well as in England; the smaller size and less closely punctured elytra will at once distinguish it from all the preceding species of Section II.

P. scutatus, Er. Shining black, with the head and thorax very shining, slightly greenish-bronze, and the elytra bronze with a slight but more pronounced greenish reflection, which, however, is occasionally almost absent; head subovate, narrower than thorax, antennæ black, rather long and scarcely thickened towards apex, with the penultimate joints not, or hardly, transverse; thorax a little narrowed in front, very finely and sparingly punctured, with the usual two dorsal rows of four punctures; elytra a little longer than thorax, finely, thickly, and somewhat asperately punctured; hind body finely and thickly punctured; legs pitchy, with tarsi and sometimes tibiæ lighter; anterior tarsi slightly dilated. L. 9–11 mm.

Male with the fifth ventral segment of hind body prolonged in a broad plate which covers the sixth segment.

In moss; rare; a northern species; Northumberland and Cumberland (Bold); Scotland, very local, Tweed, Forth, Tay, and Moray districts; Paisley (Morris Young); Tain, Ross-shire (Bold), &c.

P. decorus, Grav. This species is readily distinguished by its dull bronze appearance; the head and thorax have a slightly greenish reflection, the elytra are dull bronze, and the hind body is black with greyish-brown pubescence, the margins of the ventral segments being pitchy red; head subovate narrower than thorax, antennæ rather long with the penultimate joints longer than broad; thorax longer than broad, a little narrowed in front; elytra about as long as thorax, very finely and thickly sculptured; hind body finely and rather thickly punctured; legs pitch-black, with the tibiæ, and sometimes tarsi, reddish, anterior tarsi simple in both sexes. L. 11–12 mm.

Male with the seventh ventral segment of hind body strongly and very sharply excised, with the excision furnished behind with a broad membranous border, sixth segment slightly sinuate.

In moss, cut grass, &c.; local; London district, not common, Darenth Wood, Richmond Park, Coombe Wood, Shirley near Croydon, Highgate; Tonbridge; Hastings; Devonshire; Sutton Park, Birmingham; Dudley; Needwood Forest; Repton; Snowdon district; Manchester; Liverpool; York; Northumberland district; Scotland, common, Solway, Clyde, Forth, Dee, Moray, and Shetland districts; it appears to be a common species from the midland districts northward; Ireland, near Belfast, and Bray, co. Wicklow,

P. politus, F. Black, somewhat shining, with the head, thorax, and elytra obscurely metallic, with a slightly greenish reflection; head ovate, rather small, antennæ rather long, black, with the first joint testaceous except on the upper surface (this character will at once distinguish the species), penultimate joints longer than broad; thorax slightly narrowed in front; elytra a little longer than thorax, finely, very thickly, and somewhat asperately punctured; hind body finely and thickly punctured; legs black, anterior tarsi rather strongly dilated in male, scarcely dilated in female. L. 10–11 mm.

Male with the seventh ventral segment of hind body rather deeply and angularly excised.

In moss, &c.; common and generally distributed throughout the whole kingdom.

P. lucens, Er. Rather broad and stout, black, shining, with the head, thorax, and elytra more or less obscurely greenish; head ovate, rather small, antennæ moderately long, with the penultimate joints slightly transverse; thorax narrowed in front, about as broad as long near base; elytra almost black, with very slight greenish reflection, finely, very thickly, and somewhat asperately punctured; hind body less closely punctured than elytra; legs pitch-black, with tarsi sometimes lighter, anterior tarsi almost simple in male, simple in female. L. 9–10 mm.

Male with the seventh ventral segment of hind body moderately and angularly excised.

This species is easily distinguished from the preceding by its shorter and broader form, and by the entirely black first joint of the antennæ.

In moss, under stones, &c.; very rare; Exmouth, Devon; Malvern Hills, one specimen taken by myself on the summit of the Worcestershire Beacon; Strensall, York; Northumberland district, banks of Irthing; Scotland, very rare, Solway and Clyde districts.

P. varius, Gyll. Much smaller than any of the preceding species, somewhat fusiform, shining black, with the elytra bronze with a more or less distinct greenish reflection; head small, ovate; antennæ rather long, with penultimate joints not transverse; thorax narrowed in front, about as broad at base as elytra; elytra as long as thorax, finely and rather thickly punctured, but not as much so as in the preceding species; hind body narrowed behind, finely and rather thickly punctured, the base of the segments being a little more closely punctured than apex; legs black with the anterior tarsi sometimes less dark; these last are strongly dilated in male, slightly in female. L. 6–7 mm.

Male with the seventh ventral segment of hind body rather strongly emarginate, the emargination being furnished with a membranous border.

In dung, moss, vegetable refuse, &c.; common and generally distributed throughout the kingdom; perhaps the commonest species of the genus.

V. bimaculatus, Grav. (*nitidicollis*, Boisd.). In this variety the elytra are entirely red or dark only at base; it is somewhat rare, but widely

distributed; Cowley near London, Portsmouth (without type form), York, &c.; it has occurred as far north as the Shetland Islands.

P. marginatus, F. Rather elongate and narrow; upper surface black with the sides of thorax broadly testaceous, and the elytra slightly metallic with greenish reflection; under surface black with the prosternum entirely, and the margins of ventral segments, testaceous; head oval, rather small, antennæ rather long, with penultimate joints not transverse about as long as broad, black with the first joint testaceous beneath; thorax narrowed in front, not as broad behind as elytra; elytra a little longer than thorax, finely, thickly, and somewhat asperately punctured; hind body rather sparingly punctured, narrowed behind; legs testaceous with the posterior coxæ and trochanters, and all the knees, darker; anterior tarsi dilated in both sexes, more strongly so in male. L. 7–9 mm.

Male with the seventh ventral segment moderately emarginate, with a narrow triangular smooth space at apex of emargination.

In dung, moss, haystack refuse, &c.; common and generally distributed throughout the kingdom.

P. lepidus, Grav. Apterous, shining black, with the elytra brick-red or reddish testaceous; head oval, much narrower than thorax, antennæ rather long with penultimate joints about as long as broad, brownish black, with the two first joints reddish testaceous; thorax very shiny, narrowed in front; elytra strongly transverse, very short, much shorter than thorax, finely, thickly, and somewhat asperately punctured; hind body thickly punctured; legs reddish testaceous, with the posterior coxæ a little darker, anterior tarsi rather strongly dilated in male, almost simple in female. L. 6 mm.

Male with the seventh ventral segment rather strongly sinuate, with a smooth triangular space in front of the sinuation.

At roots of grass in sandy places, generally on the coast; very local; Deal, rather plentiful (J. J. Walker and Dr. Power); Lancaster, river refuse (A. Reston).

In the type form of this species (*P. gilvipes*, Er.) the elytra are greenish bronze; we do not appear to have this form in Britain.

P. albipes, Grav. A small and somewhat narrow species, somewhat fusiform, shining black, with the elytra pitch-black (occasionally with greenish reflection); head oval, narrower than thorax, antennæ moderately long, with the penultimate joints feebly transverse; thorax narrowed in front, about as broad at base as base of elytra; elytra as long as, or a little longer than, thorax, rather finely, thickly, and somewhat asperately punctured; hind body finely and rather thickly punctured, with the punctuation rather closer towards the base of the four first segments; legs testaceous, anterior tarsi of male slightly dilated, of female simple. L. $4\frac{1}{2}$ mm.

Male with the seventh ventral segment of hind body slightly sinuate in centre of apical margin.

In moss, manure heaps, dead leaves, flood refuse, under stones, &c.; not common; Sheerness, Maidstone, Caterham, Esher, Dulwich, Tilgate Forest, Birdbrook (Essex), Abbey Wood, Tonbridge; Hastings; Devonshire; Yardley, Knowle, and Edgbaston, near Birmingham; Repton; Northumberland district, local and rare; Scotland, scarce, Tweed, Forth, and Solway districts.

P. umbratilis, Grav. (*subfuscus*, Gyll.). Rather parallel-sided, shining black, with the elytra bronze-black; head orbicular or slightly subquadrate, about as broad as thorax in male, narrower in female; antennæ long, dark with base lighter, penultimate joints longer than broad; thorax at base a little narrower than elytra, with sides almost straight; elytra slightly longer than thorax, finely, thickly, and somewhat asperately punctured; hind body finely and thickly punctured, seventh segment less thickly; legs lighter or darker testaceous, with the femora, especially the posterior ones, darker, anterior tarsi strongly dilated in male, less strongly in female. L. 6 mm.

Male with the seventh ventral segment of hind body deeply and sharply excised, with the excision furnished with rather broad membranous border behind, sixth segment broadly emarginate.

In moss, &c.; occasionally at sap; local and not common; London district, rare, Whitstable, Maidstone, Eltham, Wimbledon, Esher, Tonbridge, Colney Hatch, Merton (Surrey); Guestling, near Hastings; Leicestershire; Repton; Edgbaston; Knowle; Stretford, Manchester (banks of Mersey); Liverpool; Northumberland district, widely spread, but not common; Scotland, Lowlands, scarce, Solway, Tweed, Forth, and Tay districts.

This species somewhat resembles the succeeding ones, but may be distinguished (apart from the dilated tarsi of the male) by the finely punctured elytra and the lighter colour of the legs; in the latter point it resembles *P. fimetarius*, which may at once be separated from it by its smaller and differently shaped head, with large central depression, and more coarsely punctured elytra.

P. cephalotes, Grav. Somewhat parallel-sided, shining black, with the elytra bronze; head transverse, subquadrate, varying in size, but sometimes broader than thorax in male; in the female it is narrower; antennæ moderately long, pitch-black, with apex often lighter, with the penultimate joints about as broad as long, or a little longer than broad (this, as in many other species, depends on the view taken of them, whether from above, or from the side); thorax a little narrower at base than elytra, with sides almost straight; elytra slightly longer than thorax, rather strongly punctured, more so than in *P. umbratilis*, but evidently less than in *P. sordidus*; hind body finely and rather thickly punctured, with the seventh segment less closely punctured, apex of ventral segments reddish; legs pitch-brown with the tarsi lighter, anterior tarsi simple in both sexes. L. 6–7 mm.

Male with the seventh ventral segment of hind body rather deeply and angularly excised, the sixth subemarginate.

In haystack refuse, manure heaps, dead leaves, &c.; somewhat local, but not uncommon; London district, generally distributed; Hastings; Devonshire and south coast generally; Midlands, common; Liverpool, Manchester, and Northumberland districts; Scotland, rather common, and found as far north as the Shetlands.

P. nigriventris, Thoms. This species is of the build and size of *P. sordidus*, from which it is at once distinguished by the close punctuation of the elytra; it is also closely allied to *P. cephalotes*, but is smaller and blacker, with darker legs; the elytra are more closely and deeply punctured than in the latter species, and the hind body is entirely black underneath instead of having the apex of the ventral segments more or less distinctly reddish. L. 6 mm.

In dead birds and animals, cut grass, &c.; rare; Chat Moss (Chappell); Northumberland district, banks of Irthing (Bold); Scotland, very local, Solway, Tay, and Dee districts (Dumfries (Sharp), Balmuto, Fifeshire (Power), &c.).

P. fimetarius, Grav. This species may be easily distinguished from its allies by its smaller and longer head, which is furnished on the forehead with a broad and distinct but shallow impression; antennæ black, with the extreme base of the first joints often pitchy red, penultimate joints hardly or not transverse; thorax distinctly narrower than elytra; elytra plainly longer than thorax, shining bronze, sometimes greenish, distinctly and moderately strongly punctured, but less so than in *P. sordidus*; hind body finely and rather thickly punctured, less thickly behind; legs pitchy testaceous, with the coxæ, especially the posterior ones, darker, anterior tarsi simple in both sexes. L. 6 mm.

Male with the seventh ventral segment of hind body slightly sinuate, the sinuation being often filled with membrane.

In dung-heaps, haystack refuse, &c.; common and generally distributed throughout the kingdom.

P. sordidus, Grav. Shining black with the elytra more or less obscurely bronze, the antennæ black with the insertion of the first joints sometimes reddish, and the legs blackish or pitch-brown with the tarsi, and sometimes the tibiæ, lighter; it may be distinguished from all its allies by the very coarse and deep punctuation of the elytra, the punctures on which are often entirely separate, and never run so much into each other as in the other species; it may also be distinguished from *P. fimetarius* by its broader and more parallel form, larger and more subquadrate head, and the absence, as a rule, of the central impression on the forehead; when present, it is much smaller and indistinct; the anterior tarsi are simple in both sexes. L. 6 mm.

Male with the seventh ventral segment of hind body plainly emarginate, the emargination bordered behind with a narrow membrane, sixth segment slightly emarginate.

In dung, haystack refuse, &c.; common and generally distributed throughout the kingdom; it is, like *P. æneus*, found in very various and widely separated regions of the world.

P. fuscus, Grav. About the size and shape of *P. cephalotes*; shining pitchy-black, with the thorax pitchy black, pitchy red, or reddish with the front part darker, and the elytra pitchy brown or reddish, not metallic; it may be distinguished, apart from its colour, by the shorter and stouter antennæ of which the penultimate joints are evidently transverse; the head is rather large, subquadrate, or suborbicular; the thorax is slightly narrower than the elytra; the elytra are a little longer than the thorax, finely and thickly punctured; the hind body is more finely and thickly punctured than the elytra, pitch-black, with the apex and the apical margins of segments reddish; legs reddish, with the posterior coxæ darker, anterior tarsi simple in both sexes. L. 6–7 mm.

Male with the seventh ventral segment of hind body plainly sinuate at apex, with a smooth triangular space at apex of sinuation.

Very rare; at the exuding frass of Cossus-infected trees, also in birds' nests; in France it is occasionally found in hornets' nests. Addington Park and Shirley, near Croydon, and Merton (Surrey) (Power); Glanvilles Wootton, Dorset, a few specimens taken by Mr. C. W. Dale and Mr. Wollaston from a stock-dove's nest inside a hollow apple tree, Sept. 22nd, 1871.

SECTION III.

Dorsal series of thorax each consisting of five punctures.

- I. First joint of posterior tarsi much longer, or evidently longer, than the last, about equal to the three following united.
 - i. Head rather large, especially in male, orbicular, or slightly subquadrate; last joint of maxillary palpi not more narrowed in front than behind.
 1. Elytra unicolorous, bronze, black, or red (in one variety).
 - A. Anterior tibiæ rather strongly spinose on exterior margin.
 - a. Elytra dark greenish bronze *P. EBENINUS*, Grav.
 - b. Elytra deep black *P. CORVINUS*, Er.
 - B. Anterior tibiæ not, or hardly, spinose.
 - a. Antennæ rather long, with joints 8–10 not, or scarcely, transverse; size larger . . . *P. FUMIGATUS*, Er.
 - b. Antennæ moderate, with joints 7–10 evidently transverse; size smaller *P. DEBILIS*, Grav.
 2. Elytra black with a sutural patch, and a more or less extended spot near shoulder, red; anterior coxæ entirely yellow testaceous *P. SANGUINOLENTUS*, Grav.
 - ii. Head small, subovate; last joint of maxillary palpi more narrowed towards apex than at base.
 1. Elytra black, with a larger or smaller red spot on each at apex near suture; anterior coxæ entirely dark *P. CRUENTATUS*, Gmel.
(*bipustulatus*, Panz.).
 2. Elytra black or brownish; anterior coxæ entirely, and under side of first joint of antennæ (very often), testaceous *P. LONGICORNIS*, Steph.
 3. Elytra black with a more or less distinct reddish band (sometimes absent), running obliquely

- from the shoulder; anterior coxæ testaceous, except on the outer surface *P. VARIANS*, *Payk.*
- 4. Elytra black, with extreme apex obscurely ferruginous; anterior coxæ entirely dark *P. AGILIS*, *Grav.*
- II. First joint of posterior tarsi as long as or scarcely longer than the last, evidently shorter than the three following united.
 - i. Elytra shorter than thorax *P. VERNALIS*, *Grav.*
 - ii. Elytra longer than or at least as long as thorax.
 - A. Length exceeding 5 mm.; thorax at base as broad as or only a little less broad than long.
 - a. Antennæ rather short and a little thickened, with penultimate joints slightly transverse; head larger.
 - a*. Anterior tarsi simple in both sexes; elytra unicolorous pitch-black or brownish; antennæ dark with base testaceous *P. VENTRALIS*, *Grav.*
 - b*. Anterior tarsi strongly dilated in male; elytra dark, with the margins, suture, and sometimes apical border testaceous; antennæ reddish brown *P. DISCOIDEUS*, *Grav.*
 - b. Antennæ long, with penultimate joints plainly longer than broad; head smaller, somewhat ovate; elytra unicolorous, black bronze, or red with base darker *P. QUISQUILIARIUS*, *Gyll.*
 - B. Length not exceeding 5 mm.; thorax half as long again as broad.
 - a. Elytra pitch-black or pitch-brown; thorax pitch-black *P. SPLENDIDULUS*, *Grav.*
 - b. Elytra obscurely testaceous; thorax pitchy-red *P. THERMARUM*, *Aubé.*

P. ebeninus, *Grav.* Shining black, with the elytra dark greenish bronze; head subquadrate in male, orbicular in female; antennæ somewhat long, black, with penultimate joints scarcely transverse; thorax a little narrower behind than elytra, with sides almost straight; elytra about as long as thorax, rather strongly, and somewhat asperately, punctured; hind body thickly punctured towards base, less thickly behind; legs black or pitch-black, with the tarsi often lighter, anterior tibiae strongly spinose on their exterior margin, anterior tarsi strongly dilated in male, moderately in female. L. $6\frac{1}{2}$ –8 mm.

Male with the seventh ventral segment of hind body deeply and sharply excised, and furnished with a membranous border behind the excision.

In haystack refuse, dung-heaps, &c.; rather common and generally distributed throughout the country; it probably occurs in Ireland, but apparently has not yet been taken there.

V. corruscus, *Grav.* This variety has the elytra bright red, and is somewhat larger and stouter than the average type-form; the species, however, is very variable in size, and in Dr. Power's collection there is a very large specimen of the ordinary form measuring nearly 11 mm. in length; the variety is very rare, and is not found in Scotland or the

north of England; it has occurred at the Holt, near Farnham, Reigate, near Colchester, and in a few other localities.

A variety also occurs with the legs testaceous (*P. ochropus*, Grav.).

P. corvinus, Er. Very like the preceding, but easily distinguished by the deep black elytra, and the thicker and finer punctuation of the hind body; the head is slightly longer, and the thorax a little shorter; the elytra are rather more closely punctured; the antennæ and legs are black, the anterior tibiæ are rather strongly spinose on their exterior margin, and the anterior tarsi are strongly dilated in male, slightly in female. L. 7 mm.

In dead leaves, decaying fungi, &c.; rare; Mickleham and Merton, Surrey; Liverpool, West Derby; Scotland, Lowlands, in marshes, rare, Solway, Forth, and Moray districts.

P. fumigatus, Er. (*immundus*, Gyll., *gagates*, Muls. et Rey). Shining black, sometimes a little pitchy, with the antennæ black or pitchy-black, and the mouth, tibiæ, and tarsi pitchy-red; it much resembles the preceding species, but the legs are lighter, the elytra are rather less closely punctured, and the hind body is evidently more closely and thickly punctured; from *P. ebeninus* it differs by its somewhat more closely punctured elytra, and much more thickly and finely punctured hind body; the elytra also are quite black, pitchy-black, or very slightly metallic, whereas in *P. ebeninus* they are distinctly greenish-bronze; the fact that the anterior tibiæ are without spines on their exterior margin will at once distinguish it from both species; the anterior tarsi are very strongly dilated in male, especially the first two joints, and moderately strongly dilated in female; in the male the seventh ventral segment of hind body is strongly and sharply excised, with the excision furnished at the sides with a narrow membranous border, and the sixth segment is slightly emarginate. L. $6\frac{1}{2}$ –7 mm.

Wet places; in moss, at roots of grass, and occasionally in damp haystack refuse; local and as a rule rather rare, but in some localities it occurs rather numerously; Hampstead, Chatham, Sevenoaks, Darenth, Lee, Wimbledon, Caterham, Croydon, Dagenham, Tonbridge, &c.; Littleington, Sussex; Manchester; Liverpool, West Derby; Northumberland district, banks of streams, common; Scotland, local, Lowlands and sea-coast, Solway, Tay, and Clyde districts.

P. debilis, Grav. A small species; shining black with the elytra often less dark; head about as broad as thorax in male, narrower in female, antennæ dark, with the first joint pitch-brown or pitchy red, penultimate joints transverse; thorax slightly narrower than elytra, with sides almost straight; elytra scarcely longer than thorax, rather finely, thickly, and somewhat asperately punctured; hind body finely and closely punctured, seventh segment much less closely punctured; legs pitchy red, or reddish testaceous, with the tarsi lighter and the posterior coxæ dusky; anterior tarsi strongly dilated in male, moderately in female; in slightly immature specimens, which often occur, the elytra

are brown, and the base of the antennæ, apex of hind body, and the intersections of the ventral segments of the latter are more or less brightly pitchy red. L. 5 mm.

In haystack refuse, dung-heaps, dead leaves, &c.; rather common and widely distributed throughout England; Scotland, Solway, Tweed, Forth, and Clyde districts.

This species may be distinguished from small specimens of the variety of *P. ebeninus* with light legs by the distinctly finer punctuation of the elytra.

P. sanguinolentus, Grav. Front parts shining black, hind body dull black, elytra with a common sutural patch and a more or less distinct patch at each shoulder, red; head subquadrate, about as broad as thorax in male, narrower in female, antennæ black with the insertion of the first joints pitchy red, penultimate joints not transverse; thorax about as broad as elytra; elytra about as long as thorax, distinctly, thickly, and asperately punctured; hind body very finely and thickly punctured, almost shagreened; legs dark with the tibiæ and tarsi sometimes brownish, and the anterior coxæ testaceous, anterior tarsi rather strongly dilated in both sexes. L. 7–7½ mm.

Male with seventh segment of hind body very deeply and sharply excised, with the excision furnished behind with a membranous border, sixth segment very feebly emarginate.

In dung, haystack refuse, &c.; somewhat local, but widely distributed; London district, common; Isle of Wight; Exeter; Swansea; Barmouth; Wicken Fen; Yardley and Knowle, near Birmingham; Repton; Manchester and Liverpool districts; Northumberland district, rare; Scotland, Solway and Tweed districts only; Ireland, near Belfast and Dublin.

P. cruentatus, Gmel. (*bipustulatus*, Panz. *nec* Woll.). Black with a larger or smaller red patch on each elytron towards apex, near suture; besides the difference in colour, it may be distinguished from the preceding by the following characters: in general form it is somewhat narrower and more fusiform; the head is smaller and more ovate; the hind body is less closely punctured and more shining; the anterior tibiæ are strongly spinose on their exterior margin, whereas in *P. sanguinolentus* they are at most feebly spinose; the legs also are blacker, and the anterior coxæ are dark, concolorous with the rest of the front legs. L. 7–7½ mm.

Male with the seventh segment of hind body deeply excised, the excision being in great measure filled with membrane.

In dung, moss, haystack refuse, &c.; often found on the coast; common and generally distributed in the Southern, London, and Midland districts; less common further north; not recorded from the Northumberland district, and very local in Scotland, Solway and Forth districts; Ireland, near Belfast.

In Dr. Power's collection there is a very curious variety which has the extreme apex of each elytron rather broadly reddish testaceous, the colour

reaching the apex, with no black space intervening, as is invariably the rule in the ordinary form.

P. longicornis, Steph. (*scybalarius*, Nord.). Shining black; head ovate, rather small, antennæ long and slender, with the penultimate joints longer than broad, pitch-black with the under side of the first joint very often testaceous; it is, however, sometimes black or entirely testaceous; thorax about as broad behind as elytra, narrowed in front; elytra scarcely longer than thorax, distinctly, thickly, and asperately punctured; hind body finely and thickly punctured, with the seventh segment less punctured and more shining; legs pitch-black with the anterior coxæ entirely testaceous; anterior tibiæ strongly spinose on their exterior margin; anterior tarsi strongly dilated in male, slightly dilated in female. L. 7–8 mm.

Male with the seventh segment of hind body plainly and angularly sinuate with a long smooth triangular space before the sinuation.

In moss, dung, haystack refuse, &c.; not uncommon in the London district and the south; apparently less common in the Midlands and the north; Scotland, Solway and Clyde districts.

P. varians, Payk. Somewhat narrowed in front and behind, shining black, with a more or less obscure reddish band or reflection stretching obliquely from shoulder; this is sometimes absent; head oval, small; antennæ rather long with the penultimate joints not transverse, black, with the insertion of the second joint often pitchy red; thorax narrowed in front; elytra a little longer than thorax, finely, thickly, and asperately punctured; hind body finely and thickly punctured, a little less closely towards apex; legs pitch-black with the anterior coxæ testaceous except outer margin, anterior tibiæ spinose, more so in female than in male, anterior tarsi strongly dilated (especially second joint) in male, feebly dilated in female. L. $5\frac{1}{2}$ – $6\frac{1}{2}$ mm.

Male with the seventh ventral segment of hind body deeply and sharply excised, with the sides of the excision narrowly bordered with membrane.

In dung, haystack refuse, moss, &c.; often on the coast; common and generally distributed throughout the kingdom.

The variety with quite black elytra may be distinguished from *P. longicornis* by its narrower and less parallel form, more closely punctured elytra, and dark outer edge of anterior coxæ.

P. agilis, Grav. Rather a narrow species, slightly fusiform, shining black, with the apical border of the elytra very obscurely ferruginous; this, however, is often hardly perceptible, and sometimes there is a reddish reflection on the disc of elytra; as in *P. varians* the anterior coxæ are more or less testaceous beneath; it comes exceedingly close to this latter insect, and might be taken for a rather small and narrow variety of it; it differs, however, in several particulars, and may

be distinguished by its somewhat shorter antennæ, of which the penultimate joints are shorter, and by having segments 4-6 of hind body more sparingly punctured; the three first joints of the anterior tarsi of male are more evenly dilated, and the tarsi in the female are almost simple; as a rule the punctuation of the elytra is a little less fine and thick, and that of the hind body a little stronger than in *P. varians*, but both the species appear to vary somewhat in this respect. L. $5-5\frac{1}{2}$ mm.

In moss, dung, haystack and flood refuse, old faggots, &c.; not uncommon in some localities, and very probably overlooked in many others; Whitstable, Egham, Walton-on-Thames, Tottenham, Caterham, Staines, Mickleham, Merton (Surrey); Tonbridge; Walton-on-Naze; Barmouth; Repton; Stretford and Dunham Park, Manchester; Scotland, in dung, very rare, Solway district.

P. vernalis, Grav. (*Gabrius vernalis*, Thoms.). Shining pitch-black, with the elytra often, and thorax sometimes, lighter, hind body more dull than the fore parts; head oblong oval, long, a little narrower than thorax, antennæ black with base testaceous, sometimes testaceous, with middle part darker, penultimate joints hardly transverse; thorax longer than broad, slightly narrowed in front; elytra shorter than thorax, especially at suture, rather strongly punctured; hind body thickly and finely punctured, slightly iridescent (as in some of the similarly coloured *Quedii*), with fine and rather close grey pubescence; legs testaceous, anterior tarsi simple in both sexes. L. $5-5\frac{1}{2}$ mm.

Male with seventh ventral segment of hind body deeply and sharply excised, with the lateral lobes prolonged and somewhat membranous.

In marshy places, under stones, dead leaves, &c.; rare; Higham and Strood, Kent (J. J. Walker); Deal, and Lytham (Lancashire), (Power); Hunstanton (Blatch); Liverpool and Manchester districts; Scotland, Lowlands, extremely local, Forth district.

P. ventralis, Grav. Shining pitch-black with the elytra and thorax sometimes slightly lighter, and the posterior margins of the ventral segments of hind body reddish testaceous; head somewhat orbicular, antennæ black with the first joint reddish testaceous, penultimate joints slightly transverse; thorax slightly longer than broad at base, with sides almost parallel in the male, and slightly contracted in the female; elytra about as long as thorax, rather strongly, thickly, and somewhat asperately punctured; hind body rather thickly punctured on the basal segments, more sparingly behind; legs testaceous, with the posterior femora darker, anterior tarsi almost simple in male, simple in female, anterior tibiæ distinctly spinose on their exterior margin. L. $4\frac{2}{3}-5\frac{1}{2}$ mm.

Male with the seventh ventral segment of hind body scarcely sinuate in middle of apical margin, with a triangular smooth space before the sinuation.

Damp places, in vegetable refuse, &c., also in dry dung-heaps; local; London district, not uncommon, Sheerness, Lee, Walton-on-Thames, Shirley, Mickleham, Ealing, Tonbridge; Dover; Hastings; The Holt, Farnham; Devon; Whitsand Bay

(Plymouth), &c.; Birmingham district; Repton; Sherwood Forest; Lincoln; Chat Moss; Northumberland district; Scotland, Lowlands, Forth district only.

P. discoideus, Grav. Shining black, with the elytra more or less pitchy black, with suture, margins, and sometimes apical border testaceous; the antennæ, legs, and the apex of the ventral segments of hind body are reddish testaceous; closely allied to the preceding, but rather smaller, with the antennæ somewhat shorter and unicolorous; the anterior tarsi, also, are strongly dilated in the male; varieties occur in which the margins only of the elytra are testaceous, and occasionally the elytra are entirely, or almost entirely, light-coloured. L. $4\frac{1}{2}$ –5 mm.

Male with the seventh ventral segment of hind body slightly sinuate, with a narrow smooth space before the sinuation.

In dung-heaps, hotbeds, haystack refuse, &c.; rather common and generally distributed throughout the kingdom.

P. quisquiliarius, Gyll. Shining black, with the elytra often tinged with a greenish reflection; head somewhat orbicular, a little narrower than thorax, antennæ long and slender, black, with the basal joint (at least on under side) testaceous, penultimate joints longer than broad; thorax at base nearly as broad as long, scarcely narrowed in front; elytra a little longer than thorax, finely, but rather deeply and closely punctured; hind body finely and rather thickly punctured, less closely behind; legs brownish-testaceous, more or less pitchy, anterior tibiæ more or less spinose on their external border (more so in female than male), anterior tarsi of male strongly dilated, of female almost simple. L. $5\frac{1}{2}$ – $6\frac{1}{2}$ mm.

Male with the seventh ventral segment of hind body moderately and angularly sinuate on its apical margin, with a smooth, triangular space before sinuation, sixth segment feebly emarginate.

Wet places, running on mud, or in refuse on the borders of streams; somewhat local, and confined chiefly to the London district and the south of England; in the former it is not uncommon, Lee, Chatham, Faversham, Penge, Walton-on-Thames, Barnes, Merton, Dagenham, Tonbridge; Bishopstoke; Exmouth, Devon; Soham, Cambridgeshire; it has been recorded from the Manchester district, but this may have been in error, as it does not appear to occur in the Midlands, and I can find no record further north than Cambridgeshire.

The *v. dimidiatus* (*P. dimidiatus*, Er.) has the elytra bright red, with the base only black: it has occurred at Notting Hill, Dulwich, Putney, Maidstone, Littleington (Sussex), Exeter, &c.; I have also received it from Armagh, Ireland, where it was taken by Rev. W. F. Johnson.

P. splendidulus, Grav. (*Gabrius splendidulus*, Thoms.). Narrow and linear, shining pitch-black, with the apex of hind body, and the apical margins of the several segments reddish; head subovate, long, nearly as broad as thorax, antennæ rather short, reddish testaceous with the first three joints lighter, joints 4–5 about as long as broad, 6–10 transverse; thorax considerably longer than broad, slightly narrowed towards

base, where it is a little narrower than elytra; scutellum almost impunctate; elytra about as long as thorax, distinctly and rather sparingly punctured; hind body finely punctured; legs testaceous. L. $4\frac{1}{2}$ – $4\frac{2}{3}$ mm.

Male with the seventh ventral segment of hind body broadly sinuate at apex.

Under bark; also in moss and dead leaves in or upon old decayed trees, often in company with ants; not common, except in one or two localities; London district, rare; Loughton (Essex); Tonbridge; Hainault Forest; New Forest; Dean Forest; Sherwood Forest (abundant under oak-bark (Blatch)); Scotland, very rare, Tay district, Rannoch.

P. thermarum, Aubé. The smallest British species of the genus; narrow and sublinear; head shining black, thorax pitch-brown or reddish-brown, elytra obscurely testaceous, often a little darker towards base, hind body black with the apex, and occasionally (in somewhat immature specimens) the apical margin of the segments, especially the ventral ones, reddish testaceous; head oblong, longer than broad, somewhat rectangular, with sides almost straight, antennæ rather short, with joints 6–10 very slightly transverse, or about as long as broad; thorax considerably longer than broad, a little less broad at base than elytra; elytra a little longer than thorax, somewhat widened behind, rather strongly and sparingly punctured; hind body finely punctured; legs pale testaceous, anterior tarsi very slightly dilated in male, simple in female. L. 3– $3\frac{1}{2}$ mm.

Male with the seventh ventral segment of hind body rather broadly and deeply sinuate at apex.

In dung-heaps, hotbeds, &c.; local; Westerham (Kent), Dulwich, Ealing, Eltham, Birdbrook (Essex), West Ham, Croydon, Farnham, &c.; Hastings district; Edgbaston and Knowle, near Birmingham; Repton, Burton-on-Trent; Northumberland district, Long Benton, rare; not recorded from Scotland.

SECTION IV.

Dorsal series of thorax each consisting of six punctures.

- I. Antennæ slender, not, or scarcely, thickened towards apex; last joint of maxillary palpi much longer than the preceding.
 - i. Elytra black, pitchy, or slightly bronze.
 1. Length $6\frac{1}{2}$ –7 mm.

A. Legs black	P. NIGRITA, Nord.
B. Legs testaceous	P. FUMARIUS, Grav.
 2. Length $3\frac{1}{2}$ – $5\frac{1}{2}$ mm.
 - A. Elytra and hind body closely and finely punctured.
 - a. Form broader, somewhat fusiform; thorax more or less narrowed in front; second and third joints of antennæ of about equal length P. MICANS, Grav.
 - b. Form narrower, subparallel; thorax slightly narrowed behind; third joint of antennæ much longer than second P. ASTUTUS, Er.

- B. Elytra coarsely punctured, hind body moderately thickly and finely punctured.
- a. Size smaller; colour darker; legs pitch-black *P. NIGRITULUS*, Grav.
 - b. Size larger; colour lighter; legs lighter or darker testaceous *P. TROSSULUS*, Nord.
- ii. Elytra bright red *P. FULVIPES*, F.
- II. Antennæ stout, rather strongly thickened towards apex; last joint of maxillary palpi about as long as the preceding; upper surface, antennæ, and legs black; length $4\frac{1}{2}$ –5 mm. *P. PULLUS*, Nord.

P. nigrita, Nord. Entirely black, shining; head oval, narrower than thorax, antennæ black, long and slender, with the penultimate joints longer than broad; thorax slightly narrowed in front, scarcely oblong, almost as broad at base as base of elytra; elytra slightly longer than thorax, finely, thickly, and somewhat asperately punctured; hind body narrowed gradually towards apex, with sides somewhat rounded, rather finely and thickly punctured, more sparingly behind; legs black, with the tarsi, and sometimes the knees, pitchy red, anterior tarsi strongly dilated in male, moderately in female. L. $6\frac{1}{2}$ –7 mm.

Male with the seventh segment of hind body deeply and sharply excised, the excision behind being partly filled with membrane.

In marshy places; at roots of grass, in sphagnum, &c.; not common; Eltham, Wimbledon, Esher, Chobham, Waddon (Surrey), Cowley, Merton Marsh; Hastings; New Forest; Cannock Chase; Coleshill, near Birmingham; Withington, near Manchester; Scotland, scarce, Solway, Forth, and Tay districts.

P. fumarius, Grav. Black, shining, with the elytra slightly bronzed; head oval, narrower than thorax; antennæ rather long, with the penultimate joints longer than broad, black with the first joint, and sometimes the last, lighter; thorax somewhat narrowed in front, almost as broad at base as base of elytra; elytra as long as thorax, finely, thickly, and somewhat asperately punctured; hind body narrowed behind, finely and rather thickly punctured on the basal segments, less thickly on the apex of fourth, and the whole of the others; legs reddish-testaceous or reddish with the coxæ dark, anterior tarsi rather strongly dilated in male, almost simple in female. L. $6\frac{1}{2}$ –7 mm.

Male with the seventh segment of hind body rather deeply and angularly sinuate, with a triangular smooth space before the sinuation.

Marshy places, in moss, flood refuse, &c.; also on the coast in sea-weed, &c.; local; London district, not uncommon; Lee, Walton-on-Thames, Eltham, Strood; Folkestone; Brighton; Eastbourne; Sandown, Isle of Wight; Soham, Cambridgeshire; York: not recorded from the extreme north of England or Scotland.

P. micans, Grav. Black, with the elytra slightly bronzed, and the apex of hind body, and often the intersections of the ventral segments, reddish-testaceous; head oval, plainly narrower than thorax, antennæ rather long, black, with the first joint, and sometimes the last, brownish-testaceous or reddish-brown, penultimate joints longer than broad; thorax more or less narrowed in front, a little narrower at base than elytra;

elytra rather longer than thorax, somewhat widened behind, finely, thickly, and somewhat asperately punctured; hind body very finely and thickly punctured; legs testaceous or reddish testaceous, with the posterior coxæ dark, anterior tarsi rather strongly dilated in male, almost simple in female. L. 5-5½ mm.

Male with the seventh ventral segment of hind body plainly and angularly sinuate in middle of apical margin, with a smooth space before the situation.

Marshy places; at roots of grass, in moss, flood refuse, &c.; local; London district, not uncommon; Wimbledon, Lee, Penge, Walton-on-Thames, Birch Wood, Tonbridge, &c.; Hastings; Worthing; Dorset; Soham and Wicken Fen; Coleshill and Knowle, near Birmingham; Bewdley Forest; Cheshire; Manchester district; Northumberland district, rare; Scotland, in marshes, very local, Solway and Forth districts.

P. astutus, Er. (*Gabrius astutus*, Muls. et Rey). Black, with the elytra sometimes castaneous or reddish (in somewhat immature specimens), apex of hind body usually lighter; head large, subovate or subquadrate, as broad, or almost as broad as thorax, antennæ rather long, dark, with the first joint pitchy-brown or reddish, penultimate joints about as long as broad; thorax longer than broad with sides subparallel, slightly narrowed behind; elytra rather longer than thorax finely and thickly punctured; hind body very finely and thickly punctured throughout; legs reddish testaceous with the posterior femora sometimes darker, anterior tarsi simple in both sexes. L. 5-5½ mm.

Male with the seventh ventral segment of hind body feebly and narrowly sinuate in middle of apical margin, with a long, triangular, smooth space before the situation.

Very rare: M. Fauvel sent me a specimen labelled "Ireland," taken by M. Javet some years ago, and one or two specimens have been taken by Mr. A. C. Horner near Sandgate.

This species resembles *P. trossulus* in build, but is larger, and has the elytra much more closely and finely punctured.

P. nigrutilus, Grav. (*Gabrius nigrutilus*, Muls. et Rey). A small species; shining black; head subovate or slightly subquadrate, nearly as broad as thorax, antennæ black with the basal joints sometimes lighter underneath, penultimate joints slightly transverse; thorax longer than broad, parallel-sided, evidently narrower than elytra; elytra usually a little longer than thorax, but variable in this respect, rather coarsely and not closely punctured; hind body moderately finely and thickly punctured with the seventh segment smoother; legs pitchy black or dark pitchy-brown, anterior tarsi simple in both sexes. L. 3½ mm.

Male with the seventh ventral segment of hind body very slightly sinuate in middle of apical margin, with a triangular smooth space before the situation.

In dung-heaps, fungi, dead leaves, &c.; not common; the only specimens I have seen were taken by Dr. Power at Horsell and Mickleham, and by Mr. Brewer on or near Snowdon.

P. trossulus, Nord. (*Gabrius trossulus*, Muls. et Rey). Very like the preceding, but considerably larger, with the legs yellowish testaceous, sometimes slightly pitchy; the elytra are said to be a little shorter in proportion to the thorax, but in a large series the proportionate length of thorax and elytra varies so much that this character is quite worthless; in some specimens the elytra are pitch-brown or even reddish; there is great confusion between this species and the preceding, and they are considered by some authors to be varieties of one species; *P. nigrutilus*, however, as described above has a very distinct appearance; in most of our collections *P. trossulus* does duty for both species. L. $4\frac{1}{2}$ mm.

In moss, vegetable refuse, dung heaps, &c.; common and generally distributed throughout the kingdom.

P. fulvipes, F. Somewhat fusiform, black, with the elytra bright red; head oval, less broad than thorax, antennæ dark, with the three first joints more or less brightly testaceous, penultimate joints about as long as broad; thorax, very shining, somewhat narrowed in front, a little narrower at base than elytra; elytra about as long as thorax, finely and rather thickly punctured; hind body narrowed behind and feebly rounded at sides, with fine grey pubescence, finely and rather thickly punctured; legs reddish testaceous, with the coxæ darker, anterior tarsi strongly dilated in male, almost simple in female. L. $5-5\frac{1}{2}$ mm.

Male with the seventh ventral segment of hind body plainly and angularly sinuate, with a large smooth triangular space before sinuation, sixth segment often slightly emarginate.

Marshy places, in moss, flood refuse, &c.; not common; Dulwich, Walton-on-Thames, Faygate, Mickleham, Merton, Cowley; Barnstaple, Devon; Tewkesbury; Bewdley Forest; Burton; Church Stretton; Lancaster; Northumberland district, rare; Scotland, rare, Tweed and Solway districts.

The six species, *P. vernalis*, *splendidulus*, *thermarum*, *astutus*, *nigrutilus*, and *trossulus* are placed by Mulsant and Rey in the sub-genus *Gabrius*, which is distinguished from *Philonthus* by having the last joint of the labial palpi subulate and evidently narrower than the preceding; the anterior tarsi are simple, or almost simple, in both sexes, and the first joint of the posterior tarsi is about equal in length to the last, and as long as the two following united.

P. pullus, Nord. (*Rabigus pullus*, Muls. et Rey). Shining black, with the elytra and hind body strongly pubescent, and so duller, the former very slightly metallic; head subovate, not much narrower than thorax in front, antennæ rather long and stout, entirely black, plainly thickened towards apex, with joints 6-7 about as long as broad, 8-10 transverse; thorax longer than broad, narrower than elytra; elytra as long as thorax, rather finely and thickly punctured; hind body narrowed behind, with sides slightly rounded, finely and rather thickly, but distinctly, punctured; legs pitch-black, posterior tarsi almost as long as the

tibiæ, with the first joint evidently longer than the last, anterior tarsi strongly dilated in male, slightly in female. L. $4\frac{1}{2}$ –5 mm.

Male with the seventh ventral segment of hind body plainly and angularly sinuate in middle of apical margin, with a triangular smooth space before the sinuation.

In vegetable refuse, &c. ; very rare ; Portsea (Dr. Power), one specimen taken many years ago ; Withington, Cheshire (Chappell).

This species is placed by Mulsant and Rey in their genus *Rabigus*, which is distinguished from *Philonthus* by the fact that the last joint of the maxillary palpi is exactly conical, and about as long as the preceding ; in all the species of *Philonthus* and *Gabrius* the last joint is longer than the preceding and more or less fusiform ; there are fourteen European species that belong to the sub-genus *Gabrius* and three to *Rabigus*.

SECTION V.

Dorsal series of thorax consisting of more than six punctures ; more or less irregular.

1. Anterior tibiæ straight ; thorax with two rather irregular dorsal series consisting of about twelve or more punctures, often doubled, and the sides also irregularly and thickly punctured *P. PUNCTUS*, Grav.
2. Anterior tibiæ slightly curved ; thorax with two irregular dorsal series consisting of about eight punctures, and the sides also punctured *P. PUELLA*, Nord.

P. punctus, Grav. (*multipunctatus*, Mann.). Shining black ; head subquadrate, rather strongly and moderately thickly punctured at the sides, antennæ black, with the insertion of the first joints sometimes reddish, scarcely thickened towards apex, penultimate joints not transverse ; thorax subquadrate, very slightly narrowed in front, with a smooth space in centre bounded by two irregular rows of rather large punctures (about twelve in number), some of which are usually double ; the sides also are rather thickly covered with punctures of the same character ; elytra deep black, sometimes obscurely metallic, rather thickly and strongly punctured ; hind body moderately strongly, and not thickly punctured ; legs black, with the tarsi sometimes pitchy red, anterior tarsi rather strongly dilated in male, feebly dilated in female. L. 9–10 mm.

Male with the seventh ventral segment of hind body plainly sinuate in middle of apical margin, with a small smooth space before the sinuation, sixth often slightly emarginate.

Muddy places near the coast ; rare ; Sheerness and Gravesend (Dr. Power and others) ; Slapton Ley, Devon (taken by Mr. Wollaston in some numbers, and recently by Mr. Bridgman, of Burton-on-Trent).

P. puella, Nord. (*parumpunctatus*, Er.). Smaller than the preceding, shining black with the elytra somewhat metallic ; head very large in male, transverse, and subrectangular, and often broader than thorax,

somewhat orbicular and narrower than thorax in female, antennæ black, evidently thickened towards apex, with the penultimate joints transverse; thorax subquadrate, scarcely narrowed in front, with two irregular series of about eight strong punctures, and the sides with scattered punctures of the same character; sometimes the series are broken up and the punctures are almost entirely scattered and separate; the number of punctures on each side rarely exceeds twelve or fifteen; elytra about as long as thorax, rather strongly, thickly, and somewhat asperately or rugosely punctured; hind body rather strongly punctured, a little less closely behind; legs black, occasionally dark pitchy-brown, with the tarsi often brownish, anterior tarsi simple in both sexes. L. 7-8 mm.

Male with the seventh ventral segment of hind body plainly and angularly sinuate in middle of apical margin.

In cut grass, dung, dead birds, &c.; local; London district, rare; Chobham, Gravesend, Coombe Wood; New Forest; Sidmouth; Dean Forest (rather common); Cheshire; Cannock Chase; Birmingham district; Sherwood Forest; Repton; Northumberland district; Scotland, Solway, Forth, Tay, and Dee districts; Ireland, Armagh, &c.

CAFIUS, Stephens.

The species belonging to this genus have, as a rule, a very characteristic appearance, and bear some relation in form to the Xantholininæ; they inhabit the sea-coast or the margins of tidal rivers; besides the character presented by the longer lateral seta of the thorax alluded to above (p. 259), they are separated from *Philonthus* proper by having the last joint of the maxillary palpi flattened, oval, and elongate, and almost securiform; from *Actobius* they may be distinguished by having the first joint of the posterior tarsi longer than the last joint, whereas in that genus the last joint is about equal to the first; there are four British species which may be separated as follows:—

- I. Elytra coarsely punctured *C. CICATRICOSUS*, *Er.*
- II. Elytra finely punctured.
 - i. Thorax with two series consisting of three large punctures on disc, and a fourth near margin.
 - 1. Elytra unicolorous; hind body without longitudinal lines of grey pubescence *C. FUCICOLA*, *Curtis.*
 - 2. Elytra with lateral margins testaceous; hind body with distinct lines of greyish pubescence . . . *C. XANTHOLOMA*, *Grav.*
 - ii. Thorax thickly punctured with only a longitudinal space in centre smooth *C. SERICEUS*, *Holme.*

C. cicatricosus, *Er.* Elongate, depressed, somewhat parallel-sided, pitch-black, with the hind body pitchy red above and ferruginous beneath; the elytra are rather lighter coloured, as a rule, than the head and thorax; head very large, somewhat variable, but always broader than thorax, subquadrate, with large round or oblong impressions or cicatrices on disc; antennæ ferruginous with first joint dark, penultimate joints slightly transverse; thorax longer than broad, distinctly narrowed

behind, where it is evidently less broad than elytra, with one or two large punctures near anterior margin, a large circular impression on disc, and one or two smaller ones behind, which are often wanting; elytra rather thickly and coarsely punctured, about as long as thorax; hind body long, finely and thickly punctured; legs black or brownish with the tibiæ and tarsi more or less ferruginous, anterior tarsi more or less dilated in both sexes. L. 10–13 mm.

Male with the seventh ventral segment of hind body rather strongly sinuate at apex, sixth segment feebly sinuate.

On the sea-coast, under stones and sea-weed; very local; Southsea and Portsmouth (H. Moncreaff, J. J. Walker, &c.); Shoreham; Worthing (E. Saunders); it occurs more plentifully between June and October; according to Mulsant and Rey it sometimes digs a burrow for itself in the damp mud.

C. fucicola, Curtis. Elongate, linear, somewhat parallel-sided, pitchy black; head large, variable in size, but at least as broad as, and usually broader than, thorax, subquadrate, with large coarse punctures, especially behind eyes; antennæ dark, with the insertion of the first joints, and the last joint (as a rule), ferruginous, penultimate joints slightly transverse; thorax longer than broad, distinctly narrowed behind, where it is narrower than elytra, with two series of three large punctures on disc; elytra a little longer than thorax, finely and thickly punctured; hind body distinctly, and rather thickly, punctured; legs ferruginous, with the apex of femora and tibiæ sometimes darker; anterior tarsi moderately dilated in male, less dilated in female. L. 9–10 mm.

Male with the seventh ventral segment of hind body rather deeply and triangularly emarginate at apex, sixth segment more broadly and less deeply emarginate.

On the sea-coast, in decaying sea-weed; very local; London district, rare, Sheerness; Littlehampton; Isle of Wight, Ventnor, &c., not uncommon in early spring; Rottingdean, Brighton; Portland; Falmouth; Devonshire; Wales; Douglas, Isle of Man; Northumberland district, Marsden, rare; Scotland, Forth district, Dalmeny; Murray's locality has lately been confirmed by Mr. Logan of Colinton (Ent. Monthly Mag., xxiii. 161); Ireland, Killiney, near Dublin (Power).

C. xantholoma, Grav. Dull black or pitchy black, with the margins of the elytra testaceous; it much resembles the preceding species, but, besides the difference of colour it may be distinguished by the evidently finer punctuation of the elytra, which are plainly longer in proportion to the thorax, and especially by the longitudinal lines of grey pubescence on the hind body, which are formed by tufts of hairs arranged on each side of the apex of each segment; the antennæ are dark, and the legs are more or less pitchy, but variable in colour, being sometimes almost entirely testaceous; the sixth and seventh ventral segments of male are sinuate, the latter rather strongly with a longitudinal smooth line before sinuation. L. 6–9 mm.

In decaying sea-weed; abundant on the coast throughout the kingdom.

The *var. variolosus*, Sharp, is a highly developed form of the male with the head much enlarged and more strongly punctured, and the thorax widened in front to admit the wider neck; the underside also of the hind body is more sparingly and coarsely punctured.

Isle of Wight, Ventnor, &c.; Falmouth; Berwick-upon-Tweed; Scotland, Forth district, &c.; Ireland, Bray, county Wicklow.

C. sericeus, Holme (*pruinus*, Er., *Remus sericeus*, Holme, *nec* Thoms., *Pseudidus sericeus*, Muls. et Rey). Elongate, linear, dull black or brownish, clothed with thick and fine greyish pubescence; head rather large, about as broad as thorax, thickly and strongly punctured with a longitudinal smooth space on forehead; antennæ obscure with apex lighter, penultimate joints scarcely transverse; thorax longer than broad, with sides almost straight and parallel, finely and thickly, but distinctly punctured, with a smooth longitudinal space in centre somewhat raised behind; elytra plainly longer than thorax, dull, very finely and thickly punctured; hind body very finely and thickly punctured, seventh segment less closely punctured and more shining; legs more or less pitchy, usually dark, with the knees and tarsi somewhat pitchy testaceous, anterior tarsi moderately dilated in both sexes. L. $4\frac{3}{4}$ –5 mm.

Male with the seventh ventral segment angularly excised, and the sixth segment slightly sinuate in middle of apical margin.

On the sea-coast in decaying sea-weed; local, but rather common in the south of England; Whitstable, Sheerness, Bognor, Margate, Kingsgate, Broadstairs; Littlehampton; Southsea; Portsmouth; Isle of Wight, Ventnor, Ryde, &c., rather common on the wing in early spring, settling on the rocks and stones in the sun; Falmouth; Dawlish; Liverpool; Lancaster; Scotland, very local, taken by Professor McNab near Ayr; Ireland, Malahide, near Dublin.

ACTOBIUS, Fauvel.

This sub-genus contains a number of small species which differ from *Philonthus* and *Cafius* in characters before mentioned, and from all the species properly belonging to these genera in having the terminal joint of the maxillary palpi conical; it is, however, very acute and longer than the penultimate joint, and in this differs from the same joint in the sub-genus *Rabigus* (*P. pullus*, &c.), in which it is conical, but is almost shorter than the penultimate; all our species have the whole of the surface of the thorax more or less closely punctured with a smooth central longitudinal narrow space. The first two species *A. cinerascens* and *signaticornis*, are considered by Mulsant and Rey to form one of his great divisions of the Staphylininæ, under the name of Remates, and to be of equivalent value to the Staphylinates and the Philonthates; the chief character on which they form this division is the triangularly dilated second joint of the antennæ; there are also certain differences in the meta- and meso-sternum, but it hardly seems a logical course to form a

large division on them, and, in fact, most authors do not even separate the two species as a genus.

- I. Second joint of antennæ triangularly dilated, plainly thicker than the following.
 - i. Head finely punctured at sides; antennæ dark with the first joint reddish testaceous *A. CINERASCENS, Grav.*
 - ii. Head strongly and not thickly punctured at sides; antennæ with apex and usually base testaceous *A. SIGNATICORNIS, Muls.*
- II. Second joint of antennæ not triangularly dilated, not thicker than the following.
 - i. Antennæ entirely testaceous, with the penultimate joints evidently transverse *A. VILLOSULUS, Steph.*
 - ii. Antennæ dark, with base more or less testaceous, with penultimate joints hardly or feebly transverse.
 - 1. Elytra pitch-black with apex only reddish; impressions at base of segments 2-4 of hind body scarcely punctured *A. PROCERULUS, Grav.*
 - 2. Elytra brick-red with base more or less broadly darker; impressions at base of segments 2-4 of hind body rather strongly punctured *A. PROLIXUS, Er.*

***A. cinerascens*, Grav.** (*Remus cinerascens*, Thoms., nec Holme) Elongate, sublinear, pitch-black, head and thorax shining, elytra and hind body finely and thickly pubescent and dull; head subquadrate, as broad as thorax, finely and very thickly punctured, with a narrow smooth longitudinal space in centre, antennæ rather slender, with penultimate joints not transverse, and second joint dilated, dark, with the first joint, and sometimes the apex, reddish testaceous; thorax somewhat longer than broad, rather strongly and closely punctured, with a smooth central longitudinal space; almost parallel-sided; elytra and hind body very finely and thickly punctured, the former evidently longer than thorax; legs ferruginous or reddish testaceous, anterior tarsi rather strongly dilated in male, moderately in female. L. 4 mm.

Male with the seventh ventral segment of hind body somewhat angularly sinuate in middle of apical margin.

Marshy places, in flood refuse, moss, especially sphagnum, &c.; rather common in the south; London district, generally distributed; Hastings, New Forest, Devonshire, &c.; Birmingham district; Scotland, Lowlands, Solway, Forth, Tay, and Moray districts; the species must occur in the north of England, but is evidently less common than in the south.

***A. signaticornis*, Rey** (*rivularis*, Kies.). This species resembles the preceding, but may very easily be distinguished from it by the following characters: the general appearance is more shining; the head and thorax are more strongly and less closely punctured; the antennæ are dark with the apical joint yellow, or, in slightly immature specimens the central portion only is dark, and the base and apex are yellow-testaceous; the scutellum and elytra are evidently less closely punctured and much more shining, and the latter are somewhat shorter in pro-

portion; the male characters are much the same as in the preceding. L. 4 mm.

Marshy places; at roots of grass; also running on the mud; rare; Strood, Barnes, Chobham, Putney, Shirley, Reigate, Merton, Sanderstead, Cowley; Folkestone; Luccombe Chine, Isle of Wight; Lymington; Liverpool; Scotland, very rare, Solway district.

The next three species belong to the sub-genus *Bisnius*, Thoms., which is said to be distinguished from *Remus* by not having the second joint of the antennæ dilated, and from *Cafius* and *Philonthus* by having the first joint of the hind tarsi subequal to the fifth,* and joints 1-4 decreasing gradually in length; the species of *Bisnius* differ very much in general appearance from the ordinary Philonthi, and somewhat resemble the smaller species of *Lathrobium*.

A. villosulus, Steph. (*Bisnius elongatulus*, Thoms.). Elongate, linear, shining black, with the elytra pitch-black, lighter at apex; head subquadrate, a little broader than thorax, strongly and rather thickly punctured on the sides, more sparingly on disc, antennæ rather short, entirely testaceous, with the penultimate joints evidently transverse; thorax longer than broad, hardly narrowed behind, narrower at base than elytra, rather strongly and thickly punctured, with a smooth central space; elytra a little longer than thorax, depressed, finely and rather thickly punctured, black, or shining pitch-brown with the apex sometimes reddish; hind body finely and rather thickly punctured, with segments 2-4 impressed at base, the impressions being almost smooth, sixth segment often less dark, and always smoother and more shining; legs testaceous, anterior tarsi moderately dilated in both sexes. L. $3\frac{1}{2}$ -4 mm.

Male with the seventh ventral segment slightly sinuate in middle of apical margin with a smooth, triangular space before the sinuation.

Marshy places, in moss, flood refuse, &c.; rare; Putney, Wandsworth, Shirley, Cowley, Mickleham, Colney Hatch; Bewdley; Withington, Cheshire; Stretford, near Manchester, on the wing; Scotland, very rare, "south of Scotland and Kinross-shire, A. Murray."

A. procerulus, Grav. (*Bisnius procerulus*, Thoms., *semipunctatus*, Fairm., *lathrobioides*, Baudi.). Of the same shape and colour as the preceding, black, with the elytra black or pitch-brown, lighter at apex; the antennæ are longer, with the penultimate joints only slightly transverse, blackish, with the base testaceous; the punctuation of the head and thorax is rather closer than in *P. villosulus*, and that of the elytra is rather stronger; the colour of the legs also is much darker; the male characters are much the same as in the other two species. L. $3\frac{1}{2}$ -4 mm.

In cut grass, flood refuse, &c., generally in marshy places; local; London district, not uncommon, Whitstable, Lee, Mickleham, Peckham, Shirley, Cowley, Sevenoaks,

* The character of the relative length of the joints of the posterior tarsi in this group, which is much used by authors, is not a very satisfactory one in many cases.

Charlton, Colney Hatch ; Isle of Wight ; Repton, Burton-on-Trent ; Lincoln ; Stretford, near Manchester, on the wing ; Northumberland district, rare, near Wooler, and sea-banks north of Whitley ; Scotland, rare, Solway, Tweed, and Tay districts.

A. prolixus, Er. (*pubipennis*, Kol., *Bisnius prolixus*, Muls. et Rey). Very closely allied to the preceding, but rather more elongate, and more brightly coloured ; the head, moreover, is a little broader and very slightly narrowed behind ; the thorax is a little narrower, and therefore appears to be slightly longer ; the fourth and fifth joints of the antennæ are rather longer and more oblong ; the elytra vary somewhat in colour, but are, as a rule, brick-red, or reddish testaceous, with the base more or less broadly dark ; the hind body has segments 2-4 transversely impressed as in the two preceding, but the impressions in *A. villosulus* and *A. procerulus* are scarcely visibly punctured, whereas in this species they are evidently and rather strongly punctured ; this is one of the best distinguishing characters, as the colour varies, and some specimens have only the extreme apex of elytra red ; the legs are reddish testaceous, lighter than in the preceding species. L. $3\frac{1}{2}$ -4 mm.

In muddy places, under stones, also running in the sun on the mud in dried-up water-courses ; very local, and not common ; Notting Hill, St. John's Wood, Colney Hatch ; Scotland, Solway district only.

XANTHOLININÆ.

In this sub-family which, as stated above (p. 221), has been until comparatively recently included under the Staphylininæ, the antennæ are inserted near the middle of the anterior margin of the front, and are approximate at base ; the head is usually as large, or almost as large, as thorax and is constricted behind into a short and narrow neck ; the antennæ are often strongly geniculate ; the thorax is long and more or less rectangular and often furnished with rows of punctures ; the general form is linear and elongate ; in our genera when the antennæ are strongly geniculate the elytra are imbricate, that is to say, one overlaps the other like tiles on a roof. The sub-family contains at present about twenty genera, some of which, however, are further divided by different authors.

The larvæ of the Xantholininæ are chiefly characterized by their large rectangular, suboblong heads and linear form ; that of *X. tricolor* is described by Mulsant and Rey, *Brévipennes Xantholiniens*, p. 60 ; it is shining reddish testaceous in colour with the abdomen pale, with the head a third broader than thorax, rather longer than broad ; the clypeus is furnished with four teeth in front ; antennæ short ; prothorax rather long and narrow, semicylindrical, as long as the meso- and meta-thorax together ; abdomen long, longer than the rest of the body, rather deeply furrowed longitudinally on the first eight segments, which are almost smooth on disc, but wrinkled at apex, and rough at sides ; last segment trapeziform, narrower behind, with an anal appendage, and two cerci, of which the second joint is narrower and a little shorter than the first ; legs short.

The larvæ of *X. punctulatus*, *linearis*, &c., described by Bouché, Erichson, Mulsant and Rey, &c., do not differ much from the above except in size, colour, and the relative length of thorax and of the joints of the cerci ; in all the species the body appears to be strangulate behind the head, owing to the large size of the latter.

- I. Antennæ strongly geniculate ; suture of elytra imbricated.
 - i. Maxillary palpi with last joint about as long as penultimate.
 - 1. Lateral marginal line of thorax prolonged nearly to anterior angles without touching the internal border of reflexed margin XANTHOLINUS, *Serv.*
 - 2. Lateral marginal line of thorax bent underneath and joining the border of reflexed margin some distance before anterior angles NUDOBIUS, *Thoms.*
 - ii. Maxillary palpi with last joint very short, narrow, and subulate LEPTACINUS, *Er.*
- II. Antennæ feebly geniculate ; suture of elytra simple.
 - i. Elytra with sutural stria well marked ; posterior tibiæ simply ciliate BAPTOLINUS, *Kraatz.*
 - ii. Elytra with sutural stria obsolete ; posterior tibiæ spinose OTHIUS, *Steph.*

XANTHOLINUS, Serville.

From this genus, as constituted below, the sub-genus *Nudobius* has been removed, as in many respects it differs very considerably from *Xantholinus* in structure, and its habitat is very different from that of the great majority of the true Xantholini ; the sub-genus *Eulissus* = *Gaurop-terus*, containing in our fauna the single species *X. fulgidus*, seems hardly sufficiently distinct to justify its separation ; the genus *Xantholinus* is a very extensive one and contains at present upwards of two hundred species, which are distributed over almost every quarter of the world ; there are ten British species, which may be distinguished as follows :—

- I. Thorax without dorsal series of punctures ; forehead with two deep striæ ; elytra bright red (sub-gen. *Eulissus*, *Mannh.*) X. FULGIDUS, *F.*
- II. Thorax with dorsal series of punctures.
 - i. Elytra bright red X. GLABRATUS, *Grav.*
 - ii. Elytra black, pitchy brown, or bronze.
 - 1. Head strongly and coarsely punctured ; temples bordered at sides.
 - A. Antennæ and legs black ; dorsal series of thorax consisting of four or five punctures ; head subquadrate X. PUNCTULATUS, *Payk.*
 - B. Antennæ and legs lighter or darker pitchy red or reddish testaceous ; dorsal series of thorax consisting of eight or nine punctures ; head oblong X. OCHRACEUS, *Gyll.*
 - C. Antennæ and legs lighter or darker pitchy red, or reddish testaceous ; dorsal series of thorax consisting of four or five punctures ; head somewhat subquadrate, intermediate in shape between the two preceding species X. ATRATUS, *Heer.*
 - 2. Head less strongly and much more diffusely punctured ; temples not bordered at sides.
 - A. Elytra red, thorax black ; size rather small (6 mm.) X. GLABER, *Nord.*
 - B. Elytra and thorax testaceous red.
 - a. Head oblong-ovate ; length 6–6½ mm. X. DISTANS, *Kr.*
 - b. Head oblong ; length 9–10 mm. X. TRICOLOR, *F.*
 - C. Elytra bronze or black.

- a. Elytra shorter; dorsal series of thorax consisting of some twelve or sixteen punctures; thorax evidently more closely punctured at sides *X. LINEARIS*, *Ol.*
- b. Elytra longer; dorsal series of thorax consisting of some ten or twelve punctures; thorax less closely punctured at sides *X. LONGIVENTRIS*, *Heer.*

X. fulgidus, F. (*Eulissus* (*Gyrohypnus*) *fulgidus*, Mannh., *Gauropterus fulgidus*, Thoms.). Elongate, very narrow, shining black, with the elytra brilliant red; head oblong, rectangular, parallel-sided, a little broader than thorax, with large, coarse, oblong punctures, which on the sides form continuous lines; the forehead is broad, with two long deep striæ; antennæ short, plainly thickened, pitchy brown, with first joint black, and apex often lighter, penultimate joints strongly transverse; thorax oblong, widest in front, evidently narrowed behind, where it is narrower than elytra, with a deep furrowed stria on each side near margin, formed of confluent punctures, disc smooth; scutellum black with large, scattered punctures; elytra scarcely as long as thorax, with two rows of shallow punctures, one near suture, and one on disc, and scattered punctures between; hind body long, finely and sparingly punctured; legs pitch-black or black, with the tarsi, trochanters, and knees lighter. L. 9–10 mm.

Male with the seventh segment of hind body subtruncate at apex, segment of armature distinct, sinuate at apex.

In hotbeds, rubbish heaps, and vegetable refuse generally; somewhat widely distributed in England, but, as a rule, it occurs very sparingly and cannot be considered by any means common; Wandsworth, Clapham, West Ham, Dulwich, Belvedere, Ealing, Mickleham, Tonbridge, Birdbrook (Essex); Kingsgate; Littleington (Sussex); Devonshire, Exeter, &c.; Wicken Fen; Repton; Lincoln; Northumberland and Durham district, banks of Tyne, Derwent, and South Shields.

X. glabratus, Grav. (*Xantholinus* (*Megalinus*) *glabratus*, Muls. et Rey). Elongate, parallel-sided, rather robust, shining black, with the elytra bright red; head large, suboblong, distinctly narrowed in front, broader behind than thorax, very finely punctured, and furnished, especially towards the sides, with large coarse pores; forehead with four deep convergent striæ, of which the inner ones are most distinct; antennæ short, brownish red, with the first joint black, joints 4–10 strongly transverse; thorax oblong, plainly narrowed behind, where it is narrower than elytra, with two dorsal and two lateral series of large punctures; elytra about as long as thorax, sparingly punctured, the punctures being sometimes arranged in irregular rows; hind body finely and sparingly punctured; legs black or pitchy brown, with the tibiæ often less dark, and the tarsi reddish. L. 10–14 mm.

Male with the seventh segment of hind body subtruncate at apex, segment of armature more or less projecting, and strongly sinuate on its ventral surface; in the female this segment is also strongly emarginate beneath.

In dung, haystack refuse, decaying sea-weed, under stones, &c.; common and generally distributed throughout the kingdom, but more abundant in the south than in the north; in Scotland it has been recorded only from the Solway, Clyde, and Shetland districts, but probably occurs in the intervening ones; it is common in Ireland.

X. punctulatus, Payk. (sub-gen. *Gyrohypnus*, Steph.). Shining black, with the elytra slightly metallic, sometimes pitchy; head subquadrate, broader behind than thorax, very strongly and subrugosely punctured, with an almost smooth central space, forehead with four furrows; thorax oblong, very slightly narrowed behind, with two dorsal series of four or five punctures, and two lateral of eight or nine finer ones; elytra a little longer than thorax, rather strongly and not thickly punctured, the punctures being arranged in rows towards the sides; hind body finely and rather thickly punctured; legs black or pitch-black, with the tarsi always lighter. L. 6–6½ mm.

Male with the seventh segment of hind body truncate, segment of armature imbricate in middle and often split and gaping open; in the female the segment of armature is furnished behind with an additional small crescent-shaped segment.

In haystack refuse, moss, cut grass, &c.; common throughout the kingdom.

X. ochraceus, Gyll. (sub-gen. *Gyrohypnus*, Steph.). This species very closely resembles the preceding, but is a little smaller and narrower, and, as a rule, of a distinctly lighter colour, the legs being pitchy red or reddish testaceous, and the elytra being occasionally dark pitchy red, or somewhat testaceous; sometimes, however, dark specimens closely resemble *X. punctulatus* in colour; the head is more oblong and parallel-sided than in the latter species, and is more thickly and rugosely punctured on the sides, with the punctures more oblong; the thorax is a little more narrowed behind, and the dorsal series is composed of a larger number of punctures; the elytra are a little more finely punctured, and not quite so long in proportion, but these characters appear to vary in different specimens. L. 6 mm.

In haystack refuse, cut grass, moss, &c.; local, but widely distributed; London district, south and midland districts, not uncommon; somewhat rarer further north; Scotland, only recorded from the Solway and Moray districts, but I have a specimen which, I believe, comes from one of the intervening localities. Ireland, near Belfast.

X. atratus (sub-gen. *Gyrohypnus*, Steph.). This species is closely related to the two preceding, and is, in the shape of the head, and one or two other points, intermediate between them; from *X. punctulatus* it differs in not having the head at all widened towards base (this character, however, is not always very obvious in *X. punctulatus*), and in having the dorsal series of thorax composed of somewhat finer punctures; in colour, size, and shape it much resembles *X. ochraceus* from which it may be distinguished by its less oblong head, and by having the dorsal series composed of a smaller number of punctures; the legs are pitchy red and the elytra are usually darker than in average *X. ochraceus*, but this is by no means a reliable character. L. 6 mm.

In nests of *Formica rufa*; local; Plumstead, Chatham, Esher; Guestling, near Hastings; Kidderminster; Bewdley Forest; Buddon Wood, Leicestershire; Liverpool.

X. glaber, Nord. Shining black, with the elytra red or reddish-testaceous; head suboval or slightly subquadrate, longer and narrower in female than in male, almost smooth, except for the usual frontal furrows; antennæ short, pitchy red, with the first joint darker, and the last usually testaceous, joints 4–10 strongly transverse; thorax oblong, hardly narrowed behind, with two dorsal series consisting of eight or nine punctures, and two lateral series consisting of seven or eight somewhat finer punctures; elytra scarcely longer than thorax, with three somewhat irregular series of shallow punctures; hind body finely and sparingly punctured; legs reddish with the coxæ, and sometimes the posterior femora, darker. L. 6 mm.

In the damp wood mould beneath the bark of trees, often in company with ants; rare; Westerham, Kent; Richmond Park, Surrey (Champion); Grantchester, near Cambridge (Power).

X. tricolor, F. A rather large and conspicuous species which cannot well be confounded with any other; head shining black, thorax and elytra bright testaceous red, hind body pitch-black with the apex of hinder segments usually reddish; head oblong, slightly narrowed in front, diffusely punctured, antennæ short, reddish, with apical joint usually lighter, joints 4–10 strongly transverse; thorax oblong plainly narrowed behind, with two dorsal series composed of twelve to fourteen punctures, and two confused lateral series; elytra almost square, distinctly shorter than thorax, rather strongly punctured; hind body finely punctured; legs reddish testaceous. L. 9–10½ mm.

Male with seventh segment of hind body subtruncate at apex, segment of armature projecting, subsinuate and ciliate at apex, female with segment of armature apparently furnished with a small extra segment at apex.

In vegetable refuse, decaying sea-weed, &c.; it occurs both inland and on the coast; London district, not uncommon; Deal; Folkestone; Hastings; Portland Island; Isle of Wight; Devonshire; Scilly Islands; Wicken Fen; Hunstanton; Weston-super-Mare; Tewkesbury; Gloucester; Liverpool; Northumberland district; Scotland, Highlands, rare; Tay and Dee districts; it appears to be much commoner in the south than further north.

X. distans, Kr. Allied to *X. tricolor* but smaller, with the colour of the head and hind body more pitchy, and of the thorax usually darker; the head is less oblong, and the punctures of the dorsal series of thorax are finer and do not exceed ten or twelve; the thorax also is shorter in proportion; the species very closely resembles light specimens of *X. linearis*, with which it appears to be often confounded; it appears only to differ structurally from that species in having a smaller number of punctures in the dorsal series of thorax (in which, however, it agrees with *X. longiventris* which is often considered a variety of *X. linearis*),

and in its somewhat shorter and rather more strongly punctured elytra. L. $6\frac{1}{2}$ mm.

Very rare; Scotland, Highlands, Tay and Dee districts; Rannoch (Rye), Loch Callater, Braemar (Champion); it is found on the Continent under bark, moss, and dead leaves in wooded and mountainous districts only; it appears to be rather an unsatisfactory species, and has by some writers been considered a variety only of *X. tricolor*, (in Mr. Rye's collection there is a specimen with the thoracic punctuation of this latter species, which, apart from size, is the chief character in which it is said to differ from it,) whereas others appear unable to separate it from *X. linearis*; except as regards general shape, no two species could be more unlike than the two species just mentioned.

X. linearis, Ol. Narrow and elongate, shining black or bronze-black with the elytra pitchy brown; occasionally the thorax and elytra are quite light, almost pitchy red or reddish testaceous; head oblong, subparallel, sparingly punctured, antennæ short, obscurely red, with the first and last joints usually lighter, or with the first joint evidently darker, joints 4–10 strongly transverse; thorax oblong, somewhat narrowed behind, with two dorsal series consisting of twelve to sixteen punctures, the two lateral series being confused; elytra a little varying in length, about as long as, or shorter than, thorax, rather finely and sometimes even moderately strongly punctured, but with the punctuation not thick; hind body very finely and sparingly punctured; legs red with the tarsi a little lighter. L. 6 mm.

Male with the seventh segment of hind body subtruncate, segment of armature somewhat sinuate at apex, female with the latter segment apparently consisting of two segments.

In hotbeds and vegetable refuse generally; abundant throughout the kingdom.

X. longiventris, Heer. Very closely related to the preceding, of which it is by many writers considered a variety; it is, however, as a rule larger and darker, and may be distinguished by the smaller number of punctures in the dorsal series of thorax (ten to twelve), and by the longer elytra which are more delicately and sparingly punctured; as, however, intermediate forms appear to occur, it appears probable that the species can hardly be kept separate from *X. linearis*. L. 7 mm.

In haystack refuse, moss, &c.; widely distributed, but not so common as the preceding, especially in the north; Scotland, Solway, and Forth districts only.

NUDOBIUS, Thomson.

This genus contains a few species which live exclusively under bark, and are very slow in their movements; they are separated from *Xantholinus* by having the lateral marginal line of the thorax bent underneath and joining the border of the reflexed margin some distance before the anterior angles; this causes the large lateral seta of the thorax to be situated at some distance from the margin, instead of upon it, a character that has been shown before (*v. Philonthus*, p. 259) to be of considerable

importance; the forehead, moreover, has only two furrows; there is only one British species which occurs exclusively in Scotland under fir-bark and is very rare.

The larva of *Xantholinus* (*Nudobius*) *lentus* is described and figured by Schiödte (ii. p. 111, fig. x. 1); it calls for no special remark (being long and very linear, with the head and thorax simply subquadrate), except for the anal appendage, which is furnished with four strong wart-like prominences, and the very short cerci, of which the last joint is very slender and of about the same length as the first; the pupa is rather long and is characterized by the total absence of "styli motorii;" the larva is found under bark of pine and fir and devours the larvæ of various wood-feeding beetles; the warty prominences at the end of the anal appendage, if strongly magnified, are seen to be furnished with minute hooks and are used partly as organs of progression, partly for enabling the insect to retain its hold in any position.

N. lentus, Er. Somewhat depressed, shining black, with the elytra bright testaceous red; head large, rectangular, rather broader than thorax, with large scattered punctures, and the interstices very finely punctured; antennæ short, red, with the last joint often lighter, joints 4–10 strongly transverse; thorax oblong, narrowed behind, with two dorsal series consisting of about eight fine punctures, and two lateral series of six to seven less fine punctures somewhat irregularly placed; elytra longer than broad, about the length of thorax, with shallow and diffuse punctuation on disc, which becomes more or less arranged in rows at sides; hind body finely and sparingly punctured; legs reddish testaceous. L. $6\frac{1}{2}$ – $7\frac{1}{2}$ mm.

Under bark of Scotch fir; very rare; Scotland, Dee, and Moray districts (Braemar, Aviemore, &c.).

LEPTACINUS, Erichson.

About thirty species are comprised in this genus which is widely distributed in both the Old and New World; the species are distinguished from *Xantholinus* by the short narrow and subulate last joint of the maxillary palpi.

- I. Dorsal series of thorax consisting of five large punctures; length 5–6 mm.; elytra dark, or with apex and reflexed margins only lighter L. PARUMPUNCTATUS, Gyll.
- II. Dorsal series of thorax consisting of 12–14 fine punctures; length $4\frac{1}{2}$ –5 mm.; elytra with apical half almost always lighter, the colour being, as a rule, rather sharply defined L. BATYCHRUS, Gyll.
- III. Dorsal series of thorax consisting of 7–10 fine punctures; length not exceeding 4 mm.
 - i. Elytra black; habitat in hotbeds, &c. L. LINEARIS, Grav.
 - ii. Elytra with apical half testaceous; habitat in ants' nests L. FORMICETORUM, Maerk.

L. parumpunctatus, Gyll. Elongate, linear, somewhat depressed, shining black, with the apical angles of the elytra, and often a considerable portion of reflexed margin, pale testaceous or reddish; head somewhat narrowed in front, as broad behind as thorax, strongly and

sparingly punctured at the sides, forehead very large, strongly furrowed, the lateral furrows prolonged; antennæ short, obscurely red with the first joint lighter, joints 4–10 transverse; thorax oblong, narrowed behind, with two dorsal series consisting of five large punctures, of which the two anterior ones are often placed at some distance from the others; the lateral series are also composed of five punctures; elytra as long as thorax, with three somewhat indistinct rows of punctures; hind body finely and sparingly punctured; legs red with the tarsi lighter. L. 5–6 mm.

Male with the seventh segment of hind body broadly emarginate at apex, segment of armature somewhat projecting, split longitudinally, and sometimes gaping open.

In haystack refuse, stables, dung-heaps, &c.; local; Lee, Darent Wood, Sheerness, Chatham, Forest Hill, Esher, Birdbrook, Ealing, Tonbridge; Kingsgate; Devonshire; Birmingham district; Repton, Burton-on-Trent; Northumberland district, not common; Scotland, not common, Tweed, Dee, and Moray districts; Ireland, near Dublin.

L. batychnus, Gyll. Smaller and narrower than the preceding; the head is a little more oblong and is less strongly, but more thickly, punctured on the sides; the large number of fine punctures (12–14) in the dorsal series of the thorax will, however, at once distinguish it; the apical half of the elytra is usually testaceous (although sometimes specimens occur in which they are unicolorous), and the elytra are more finely punctured; the hind body is a little more distinctly punctured especially at the sides. L. $4\frac{1}{2}$ –5 mm.

In dung-heaps, haystack refuse, and vegetable refuse generally; local, and distributed much as the preceding; London district, not uncommon; Glanvilles Wootton; Devonshire; Markfield, Leicester; Cromer; Knowle, near Birmingham; Repton; Liverpool; Northumberland district, not common; Scotland, not common, Dee and Moray districts; Ireland, near Dublin.

L. linearis, Grav. This species so closely resembles the preceding in structure that it is by many authorities considered as merely a variety; it is, however, considerably smaller; the head is less oblong, a little less thickly punctured on the sides, with the central smooth space a little larger; the antennæ, as a rule, are darker; the dorsal series of thorax are composed of fewer punctures; the elytra are almost always entirely dark, sometimes a little lighter at their apical angle; the male characters are also different, the seventh ventral segment of hind body being less emarginate. L. 4 mm.

In hotbeds, vegetable refuse, &c.; common and widely distributed throughout the greater part of England; Scotland, not common, Tweed and Solway districts.

L. formicetorum, Maerk. A very small, linear species; easily distinguished from the preceding by having the elytra to a greater or less degree testaceous, the colours being rather bright and usually well defined; the antennæ have the third joint subglobose, evidently shorter than the second, whereas in *L. linearis* they are about equal; the head

also is less thickly punctured on the sides ; in somewhat immature specimens the elytra are almost entirely testaceous, and the thorax is reddish brown. L. 3 mm.

In nests of *Formica rufa* ; local, but not uncommon ; Plumstead, Chatham, Erith, Esher, Dulwich, Margate, Tilgate Forest ; Hastings ; Parkhurst Forest, Isle of Wight ; Llangollen ; Tamworth ; Bewdley ; Buddon Wood, Leicestershire ; York ; Keswick ; Scotland, Tay and Moray districts.

BAPTOLINUS, Kraatz.

This genus comprises some half-dozen species which are widely distributed ; together with *Othius* they form a group which is easily distinguished from the other genera of Xantholininæ above described by having the suture of the elytra simple ; in the other genera the elytra are imbricate, that is, they overlap one another at the suture ; the species live under bark or in wet decaying wood.

B. alternans, Grav. (*affinis*, Payk.). Bright reddish testaceous with the head, the elytra, except shoulders, and the greater part of the fifth and sixth segments of hind body, black ; head somewhat orbicular a little broader, or about as broad as, thorax ; smooth, with a few large punctures, antennæ short and rather stout, entirely red, penultimate joints strongly transverse ; thorax oblong, almost parallel-sided, with two rather large punctures on disc ; elytra as long as thorax, scarcely punctured, with sutural stria well marked ; hind body almost smooth on disc, sparingly punctured towards sides ; legs reddish testaceous. L. 6-6½ mm.

Under loose bark and in rotten wood of various trees ; rather common and widely distributed throughout the country ; not recorded from Ireland, but is probably common in many localities.

OTHIUS, Stephens.

This genus contains at present about thirty species which are widely distributed, representatives occurring in Chili, Japan, Morocco, the Australian region, &c. ; there are four British species, of which the first is, owing to its size, very different in appearance from the other three ; the two last are very closely allied and are sometimes hard to distinguish.

- I. Third joint of antennæ distinctly longer than second ; length 9-11 mm. O. FULVIPENNIS, F.
- II. Third joint of antennæ not, or scarcely, longer than second ; length 4½-5 mm.
 - i. Elytra longer than thorax ; upper surface shining black or pitch-black O. LÆVIUSCULUS, Steph.
 - ii. Elytra shorter than thorax.
 - 1. Head narrower than thorax ; thorax reddish testaceous O. MELANOCEPHALUS, Grav.
 - 2. Head as broad as thorax ; thorax brownish O. MYRMECOPHILUS, Kies.

O. fulvipennis, F. Shining black, with the elytra bright red, and the apex of hind body reddish; the head and thorax are often more or less pitchy, and the apex of the segments of hind body, especially the ventral ones, reddish brown; head oval-oblong as broad as thorax, rather large; forehead broad with two rather indistinct furrows in front; antennæ entirely red, with the penultimate joints not strongly transverse; thorax oblong, subparallel, smooth, with two or three large punctures on each side of disc; elytra rather shorter than thorax, sparingly punctured, the punctures being rather large and shallow; hind body finely and rather thickly punctured at sides, more sparingly on disc and towards apex; legs red. L. 9–11 mm.

Male with the seventh ventral segment of hind body truncate or scarcely emarginate, with a smooth space before apex, segment of armature projecting and deeply emarginate.

In moss, dead leaves, &c.; common and generally distributed throughout the country as far as the northern counties, where it is more local; Scotland, rather scarce, but widely distributed, being found in the Shetland Islands, and occurring in most localities; Ireland, Dublin, Galway, Armagh, &c.

O. læviusculus, Steph. (*punctipennis*, Lac.). Very much smaller than the preceding, black or pitch-black, very shining, with the elytra often lighter; head rather long, oblong-ovate, a little narrower than thorax, forehead with two furrows in front; antennæ reddish with the base darker, penultimate joints not strongly transverse; thorax oblong, smooth, and shining; elytra a little longer than thorax, diffusely and moderately strongly punctured, black or pitch-black, with apical margin and sometimes suture lighter; hind body very finely and sparingly punctured, a little less so towards sides; legs testaceous, femora more or less pitchy. L. 5 mm.

Male with the seventh ventral segment of hind body prolonged slightly less than the dorsal segment, feebly sinuate or truncate, with a very slight depression before the sinuation.

In moss, dead leaves, haystack refuse, &c.; also by sweeping; often in sandpits; local; London district, not uncommon; Hastings and southern counties; Barmouth; Midland districts, Tamworth, Repton, Knowle, Sherwood Forest, &c.; Manchester; Northumberland district, rare; Scotland, Lowlands, scarce, Solway, Tweed, Forth, Clyde, Tay, and Dee districts; Ireland, Dublin and near Waterford.

O. melanocephalus, Grav. Shining pitch-brown, with the head black, and the thorax and apex of hind body testaceous red; occasionally the disc of thorax is more or less obscurely darker; head rather long, oval-oblong, with two longitudinal furrows in front, antennæ testaceous red with the penultimate joints evidently transverse; thorax oblong, smooth; elytra shorter than thorax, sparingly and rather strongly punctured; hind body very finely punctured, more sparingly behind; legs pale or reddish-testaceous. L. 5 mm.

Sexual characters much as in the preceding species, presenting no marked peculiarity.

In moss, dead leaves, &c.; not uncommon; often confounded with the next species, and considered by some authorities to be confined to the north, our southern specimens being all referred by them to *O. myrmecophilus*: I have, however, undoubted examples from Malvern and Yorkshire; in Scotland the species is common as far north as Shetland, and it is recorded from Dublin, Waterford, Galway, and Armagh in Ireland.

O. myrmecophilus, Kies. Very closely allied to the preceding, and chiefly distinguished from it by the shape of the head which is evidently shorter, less oblong, and broader, being about as broad as the thorax, instead of somewhat narrower as in *O. melanocephalus*; the colour is considerably darker, and the thorax is pitchy brown rather than red, but this is somewhat variable; the thorax also is slightly more parallel-sided. L. 5 mm.

In moss, dead leaves, &c., sometimes, as its name implies, in company with ants (*F. fuliginosa*, &c.), but this is by no means always the case, and, in fact, appears to be rather the exception than the rule; Mr. J. Chappell records it from Manchester in bees' nests; it is widely distributed throughout the kingdom, occurring as far north as the Shetland Islands.

PÆDERINÆ.

This sub-family, as at present constituted, contains about sixty genera; it is divided into two groups, Latrobiaires and Pédéraires, by Mulsant and Rey on the formation of the penultimate joint of the tarsi, but this does not seem more than a generic character at the most, and in some cases, e.g. *Stenus*, is regarded merely as specific. In the Pæderinæ the anterior and posterior coxæ are conical and prominent; the mandibles are long and slender; the last joint of the maxillary palpi is usually acute; the thorax is usually bordered at the sides, but not always, and is very variable in form; the hind body is bordered; the head is rather large in most cases, and is always contracted into a more or less narrow neck; the species are narrower and linear and have, as a rule, a very distinct appearance; some of them, e.g. those belonging to the genus *Pæderus*, are very brightly coloured. The Evæsthetinæ are not here included under the Pæderinæ, as they are by many authors; the reasons for their separation as a sub-family will be found given in the remarks on the group.

- I. Penultimate joint of tarsi simple without any membranous appendage beneath.
 - i. Antennæ strongly geniculate, first joint forming a long scape CRYPTOBIUM, *Mannh.*
 - ii. Antennæ not or only slightly geniculate.
 - 1. Anterior femora and tarsi very strongly dilated.
 - A. Last joint of posterior tarsi about as long as the four preceding together; body very flat . . . ACHENIUM, *Curt.*
 - B. Last joint of posterior tarsi not as long as the three preceding together; body a little convex . LATHROBIUM, *Grav.*
 - 2. Anterior femora and tarsi not at all or comparatively slightly dilated.
 - A. Thorax slightly contracted in front, subquadrate.
 - a. Prosternum prolonged to form a process resting on the front of the mesosternum MEDON, *Steph.*

- b. Prosternum only slightly developed above the front coxæ LITHOCHARIS, *Lac.*
- B. Thorax strongly contracted in front, more or less orbicular.
 - a. Posterior tarsi nearly as long as tibiæ, joints 1-4 decreasing gradually in length STILICUS, *Latr.*
 - b. Posterior tarsi short, joints 1-4 nearly equal in length SCOPEUS, *Er.*
- II. Penultimate joint of tarsi bilobed.
 - i. Penultimate joint of tarsi without membrane beneath; species large PÆDERUS, *F.*
 - ii. Penultimate joint of tarsi with pale membrane beneath; species small SUNIUS, *Steph.*

LATHROBIUM, Gravenhorst.

This is a large and almost cosmopolitan genus containing at present between 150 and 200 species; these are chiefly confined to temperate and cold regions; twenty-five species, however, are known from the Amazon valley; they differ very much in size and general appearance, but the attempts to break the genus up into sub-genera have not hitherto been very satisfactory; they occur in moss, under stones, in vegetable refuse, at roots of grass, &c.; the sexual characters are very peculiar, the males of many species being furnished on the middle of the seventh ventral segment with two longitudinal tufts or crests of dark, erect, pubescence, enclosing between them a larger or smaller smooth space; the projecting lobes of the segment of armature also present important differences, but these are hard to describe, and the student of the group is referred to Mulsant and Rey, Brévipennes, Pédériens, 1878, Plate II., where the male characters of most of our species are figured. There are fifteen British species which may be distinguished by the following characters; it must, however, be remembered that the table here given is a purely artificial one; a more strictly scientific arrangement is given by Mulsant and Rey (l.c. p. 30, &c.), but it is one that will only cause great confusion to most workers; many species of the genus present two distinct forms; in one of these the insect is winged and has longer elytra; in the other it is apterous or has more or less rudimentary wings, and the elytra are shorter and more sparingly punctured.

- I. Head usually narrower than, at most as broad as, or very slightly broader than, thorax.
 - i. Elytra confusedly punctured.
 - 1. Elytra red with base more or less broadly black, sometimes entirely red with bases slightly fuscous.
 - A. Antennæ with joints moderately stout; length $6\frac{1}{2}$ -9 mm.
 - a. Head diffusely punctured on disc, more thickly at sides; antennæ rather long; size larger.
 - a.* Head subtriangular, rather short, a little broader behind than near eyes; red colour of elytra bright.

- a.† Form broader; punctuation of head and thorax coarser; coxæ pitchy; elytra with black and red colour rather sharply defined *L. ELONGATUM, L.*
- b.† Form narrower; punctuation of head and thorax finer; coxæ red; elytra with black and red colour not sharply defined *L. BOREALE, Hoch.*
- b.* Head longer, somewhat ovate, not broader behind; elytra dirty testaceous red, darker at base *L. FULVIPENNE, Grav.*
- b. Head strongly, thickly, and evenly punctured throughout; red and black colour of elytra very sharply defined; antennæ short; size smaller *L. RUPIPENNE, Gyll.*
- B. Antennæ filiform, very long, with joints slender and elongate; red and black colour of elytra sharply defined; length 5-5½ mm. *L. ANGUSTATUM, Lac.*
- 2. Upper surface unicolorous black.
 - A. Legs testaceous.
 - a. Length 8 mm.; elytra very variable in length *L. BRUNNIPES, F.*
 - b. Length 3-4 mm.; elytra distinctly shorter than thorax *L. LONGULUM, Grav.*
 - B. Legs pitch-black or dark pitchy red.
 - a. Elytra more or less distinctly shorter than thorax, or of about the same length (in the winged forms).
 - a.* Palpi with apical joint black *L. ATRIPALPE, Scriba.*
 - b.* Palpi entirely red.
 - a.† Head slightly narrower than thorax; form less linear; third joint of antennæ longer than second *L. PUNCTATUM, Zett.*
 - b.† Head as broad as thorax; form very narrow, linear, and parallel; second and third joints of antennæ about equal *L. FILIFORME, Grav.*
 - b. Elytra considerably longer than thorax *L. QUADRATUM, Payk.*
- 3. Upper surface unicolorous black with a more or less distinct yellow spot at apical angle of each elytron (rarely absent); legs testaceous; elytra variable in length *L. TERMINATUM, Grav.*
- 4. Elytra and thorax reddish testaceous, the former very finely and confusedly punctured, distinctly shorter than thorax *L. PALLIDUM, Nord.*
- ii. Elytra very strongly punctured in rows, usually testaceous red, darker at base; thorax black, or more often pitchy red *L. MULTIPUNCTUM, Grav.*
- II. Head very distinctly broader than thorax; elytra punctured in more or less irregular rows, bright red with base black, the colour being sharply defined *L. ANGUSTICOLLE, Lac.*

L. elongatum, L. Elongate, parallel-sided, scantily, but evidently, pubescent, shining black, with the elytra bright red, black at base, the colour being usually sharply defined; head narrowed before eyes, strongly punctured, sparingly on disc, thickly at sides, under-surface of temples

strongly and rather thickly punctured; antennæ rather stout, hardly as long as head and thorax united, lighter or darker red, with joints 4–10 oblong, nearly equal in length; thorax considerably longer than broad, parallel-sided, narrower than elytra, strongly and rather thickly punctured with a narrow smooth central line; elytra a little longer than thorax, rather strongly but not deeply punctured; hind body convex, with the front segments slightly impressed transversely at base, finely and thickly punctured; legs rather stout, reddish-testaceous, with the coxæ darker. L. $7\frac{1}{2}$ –8 mm.

Male with the seventh ventral segment of hind body furnished with two longitudinal crests or tufts of raised hairs, separated by a space free from pubescence which is rugose and impressed and strongly and angularly excised on its apical margin; the third to the fifth segments are slightly impressed in centre.

In flood refuse, moss, &c., in marshy places; widely distributed throughout England and Wales; Scotland, common in marshes, in Lowland districts; Ireland, Belfast, Dublin, Armagh, &c.

L. boreale, Hoch. (*elongatum*, Gyll., nec Linné., *geminum*, Kr.). This species is very closely allied to the preceding and in most collections is mixed with it; it is a little narrower, and the general punctuation is rather finer; the coxæ are red, and the red and black colour of the elytra is not sharply defined; occasionally the elytra are entirely of a bright red colour; the under-surface of the sides of the front of head is sparingly punctured instead of being thickly punctured as in the preceding species, and the punctuation of the upper surface of the sides of head is more evidently finer than that of thorax; in the male the longitudinal crests on the seventh ventral segment of hind body are shorter and the apical margin of the space between them is not excised but only slightly sinuate. L. $7\frac{1}{2}$ –8 mm.

In moss, flood refuse, &c.; widely distributed throughout England and Wales; Scotland, only recorded from the Solway district; Ireland, Bantry, Valentia, Westport, Galway, Rathmullan, &c.

L. fulvipenne, Grav. This species is easily distinguished from either of the preceding by its longer, narrower, and more linear form, and the dirty testaceous red colour of the elytra which are usually obscurely darker at base; the head is rather narrower behind and more ovate; in the male there are no raised crests on the seventh ventral segment of hind body, but the sixth and seventh segments are furnished with obsolete impressions, and the seventh has the apical margin broadly and obtusely emarginate; in the type form the elytra are about as long as the thorax, but a variety commonly occurs in which they are plainly shorter, more strongly and less thickly punctured, and of a reddish brown colour which becomes hardly darker at base; this latter form is almost, if not quite, apterous, whereas the type form is winged. L. $7\frac{1}{2}$ – $8\frac{1}{2}$ mm.

In moss, flood refuse, &c.; often under loose bark at the roots of trees; common and widely distributed throughout the kingdom.

L. rufipenne, Gyll. (*punctulatum*, Mann.). Shining black, elytra bright red with the base sharply black; considerably smaller than any of the preceding species; head strongly, thickly, and evenly punctured; antennæ rather short and stout, shorter than head and thorax united, with joints 4-10 submoniliform and of about equal length, not transverse, last joint oval, acuminate at apex; thorax oblong, parallel-sided, narrower than elytra, rather strongly punctured with a smooth central line; elytra a little longer than thorax, often depressed near suture, evidently more finely and thickly punctured than thorax; hind body parallel-sided, suddenly narrowed at apex, finely and very thickly punctured; legs red with coxæ darker. L. 6 mm.

Male with the sixth and seventh ventral segments of hind body slightly impressed in centre, seventh segment narrowly emarginate in middle of apical border, with a small tuft of hair at each side of the emargination.

On the borders of pools and ditches, on or near the mud; very rare; Horning Fen and other fen localities; Coleshill, Sutton Park, Knowle, Bewdley Forest, and Can-nock Chase (W. G. Blatch); Barton Moss, Manchester, in sphagnum (A. Reston); Stretford, Manchester, and Staly Brushes, Cheshire (J. Chappell).

L. angustatum, Lac. Shining black with the elytra bright red with base sharply black; a rather small, narrow species, easily distinguished from its allies by its long, slender antennæ, of which all the joints are much longer than broad; head subovate, a little narrower than thorax, rather finely and thickly punctured; thorax longer than broad, with sides slightly rounded, rather strongly and thickly punctured with a smooth central line; elytra rather broader, and a little longer, than thorax, strongly and rather thickly punctured; hind body with the basal segments strongly impressed at base, very finely and thickly punctured; legs reddish-testaceous with the base of coxæ darker. L. $5\frac{1}{4}$ - $5\frac{1}{2}$ mm.

Male with the seventh ventral segment of hind body slightly furrowed on its central line with apical margin narrowly emarginate.

Marshy places—in moss, débris of reeds, &c.; rare; Strood and Higham, Kent (Champion and Walker in some numbers); Gravesend; Folkestone; Gumley, Market Harborough (Matthews); Luccombe Chine, Isle of Wight, April 1885 (Sharp, Gorham, and Fowler).

L. brunnipes, F. (*punctatum*, Fauvel, *nec* Zett. var.). Entirely black, shining, rather broad proportionally; head short oval hardly narrower than thorax, rather strongly and more or less thickly punctured; palpi red; antennæ darker or lighter red, as long as head and thorax united, with penultimate joints longer than broad; thorax oblong, subparallel, or slightly narrowed behind, rather strongly punctured with a narrow smooth central line; elytra variable both as regards length and punctuation; hind body finely and thickly punctured, evidently pubescent, parallel-sided and sharply narrowed at apex; legs reddish testaceous with the coxæ pitchy. Legs 8- $8\frac{1}{2}$ mm.

Male with the seventh ventral segment of hind body broadly and strongly impressed, and deeply and angularly excised on its apical border.

In moss, dead leaves, &c.; common and generally distributed throughout the kingdom.

There are two distinct forms of this insect, one fully winged with the elytra longer than thorax, and the other apterous or with rudimentary wings, with the elytra shorter than thorax; in the latter form the elytra are more finely and sparingly punctured than in the former.

L. longulum, Grav. A very small, narrow, linear species, shining black or pitchy black with the mouth parts red; head oval-oblong, a little broader than thorax, rather strongly and sparingly punctured; antennæ red, rather stout, as long as head and thorax united, joints 4-10 submoniliform, penultimate joints slightly longer than broad; thorax much longer than broad, parallel-sided, rather strongly and thickly punctured, with a smooth central line; elytra distinctly shorter than thorax, rather finely, and more or less thickly, punctured; hind body elongate, very finely and thickly punctured, less thickly towards apex, very finely and rather closely pubescent; legs red. L. 3-4 mm.

Male with seventh ventral segment of hind body obsoletely furrowed on central line, apical margin bisinuate.

Marshy places; in moss, flood refuse, &c.; sometimes in haystack refuse, sand-pits, &c.; London district, generally distributed; Glanvilles Wootton; Portsmouth; Repton; Stratford; Lincoln; Northumberland district, rare; Scotland, scarce, Solway, Tweed, Forth, and Argyle districts.

L. punctatum, Zett. (*fovulum*, Steph.). Entirely black with the mouth parts red; head somewhat rounded, about as broad as thorax, rather strongly and sparingly punctured, very sparingly on disc; antennæ reddish or ferruginous, about as long as head and thorax united, joints 4-10 oblong, gradually a little shorter; thorax oblong, parallel-sided, almost as broad as elytra, rather strongly but more or less sparingly punctured with a narrow smooth longitudinal space in centre; elytra shorter than thorax, rather strongly and thickly punctured; hind body parallel-sided, suddenly narrowed at apex, very finely and thickly punctured, dull, with fine and close greyish pubescence; legs lighter or darker pitchy red. L. 6 mm.

Male with sixth and seventh ventral segments of hind body impressed, and the latter deeply emarginate on apical margin.

Marshy places; in dead leaves, moss, flood refuse, &c.; local, and as a rule rare; London district, not uncommon, Lee, Darenth Wood, Walton-on-Thames, Wimbledon, Barnes, Dagenham, Tonbridge; Glanvilles Wootton, Dorset; Scotland, very rare, "Shingle near Preston Bridge, Tweed district," R. Hislop; it is possible the species may be overlooked as it probably occurs in many other localities; it is very like a small *L. brunnipes* of the brachypterous type, but the head and thorax are more sparingly punctured, and the legs are darker.

L. atripalpe, Scriba. Very like the preceding, but rather narrower

and more cylindrical; the head and thorax are rather shorter and broader, and the general punctuation of head, thorax, and elytra is closer and more regular; the general colour is a deeper black, and the apical joint of the palpi is black instead of clear red; the seventh ventral segment of the hind body of male is also more deeply emarginate. L. 6 mm.

Very rare; Scotland, Solway and Forth districts, a few specimens taken by Dr. Sharp; the species is very distinct from *L. punctatum*, but it is apparently not quite certain whether it is really the *L. atripalpe* of Scriba.

L. filiforme, Grav. (*impressum*, Heer.). Shining black with the mouth parts red, antennæ red, legs pitchy red; very like *L. punctatum*, but smaller and narrower and a little less depressed; the head is more oval, and more finely and thickly punctured; the thorax is narrower and more oblong, much longer than broad; the legs are darker, and the hind body more shining; in the male the sixth and seventh ventral segments of the hind body are very narrowly impressed, and the latter is angularly excised on apical margin instead of being circularly emarginate as in *L. punctatum*; as in other species there are two forms, one with longer elytra and winged, the other with shorter elytra and apterous. L. 5 mm.

Marshy places, in moss, flood refuse, &c.; rare; Walton-on-Thames; Hammersmith and Notting Hill (formerly); Amberley; Scotland, Forth district, but perhaps in error (Sharp, *Scottish Naturalist*, vol. iii. no. xvii. p. 33); Ireland, near Waterford (Power).

L. quadratum, Payk. Black, head and thorax very shining, elytra less shining, hind body almost dull with rather thick and fine greyish pubescence; head suborbicular, finely and thickly punctured at sides, sparingly on disc; antennæ long and slender, dark pitchy red, with all the joints elongate; thorax oblong, plainly narrower than elytra, finely and thickly punctured at sides, more strongly and sparingly on disc, with a narrow smooth central line; elytra plainly longer than thorax, depressed longitudinally near suture, finely, thickly, and somewhat rugosely punctured; hind body very finely and thickly punctured, gradually narrowed from middle to apex; legs pitchy, with tarsi, and usually knees, lighter. L. 6 mm.

Male with the seventh dorsal segment broadly rounded on apical border, seventh ventral segment rather deeply and angularly excised, female with seventh ventral segment truncate and ciliate.

Marshy places; at roots of grass, in moss, flood refuse, &c.; not common; Darent Wood; Walton-on-Thames; Hammersmith and Notting Hill (formerly); Kingsbury; Shipley, near Horsham; Soham, Cambridgeshire; Oxfordshire; Coleshill, near Birmingham; Liverpool; Northumberland district; Scotland, rare, Solway district; Ireland, near Belfast and Armagh.

L. terminatum, Grav. Shining black, with a more or less distinct testaceous spot at the postero-external angle of each elytron; head sub-

orbicular, finely and thickly punctured, rather more sparingly on disc ; antennæ long and slender, brownish, with base testaceous, with all the joints elongate ; thorax oblong, a little narrower than elytra, rather strongly punctured, more thickly at sides, with a more or less indistinct smooth central line ; elytra variable, longer than, or as long as, thorax ; hind body very finely and thickly punctured ; legs testaceous or reddish testaceous, with the coxæ darker. L. $5\frac{1}{2}$ –6 mm.

Seventh dorsal segment of hind body rounded in male, strongly and sharply produced in female, seventh ventral segment strongly and angularly excised in male, sinuate on each side and produced in female, the produced part being truncate and ciliate.

Marshy places ; in moss, at roots of grass, &c. ; common and generally distributed in the South and Midlands ; rarer further north ; in Scotland, however, it is common in sphagnum in the Solway, Forth, and Tay districts ; there is no record, apparently, of its capture in England further north than Cheshire and Yorkshire, but it almost certainly occurs in the northern counties.

The variety in which the yellow spots at apex of elytra are wanting is rarer than the type ; it usually has the legs somewhat darker ; it occurs in the Isle of Wight and other localities ; it is not named and may be called *v. immaculatum*.

Erichson and other authors unite *L. terminatum* with *L. quadratum*, but they are quite distinct in form, colour of legs, sexual differences, &c.

L. pallidum, Nord. (*Jansoni*, Crotch). Rather narrow and linear, testaceous red, front parts lighter and shining, hind body darker and dull ; head subtriangular, as broad as thorax, rather finely and very diffusely punctured ; antennæ testaceous red, long and not very slender, joints 4–10 gradually shorter, the penultimate being only slightly longer than broad ; thorax oblong, almost as broad as elytra, more thickly punctured than head, with a distinct smooth longitudinal central line ; elytra variable much shorter than, or nearly as long as, thorax, rather finely and thickly punctured ; hind body with close pubescence, very thickly and finely punctured ; legs reddish-testaceous. L. $4\frac{2}{3}$ – $5\frac{1}{2}$ mm.

Male with the third to the sixth ventral segments impressed in middle, seventh furrowed and angularly excised in middle of apical margin, the sides of the excision being produced in the form of two sharp teeth, and the apical margin on each side of these being sinuate.

In moss, flood refuse, &c. ; local and usually very rare ; West Wickham ; Tottenham ; Amberley ; Shipley, near Horsham (Gorham, in numbers) ; Lowestoft ; Isle of Wight.

L. Jansoni is a darker form of this species with longer elytra ; as before pointed out the variation of the elytra is very usual in this genus.

L. multipunctum, Grav. (*v. pyrenaicum*, Fairm., *v. striatopunctatum*, Kies.). Narrow and linear, colour very variable, entirely pitch-black, or black or pitchy brown with the elytra red, or entirely brownish red with the hind body, except apex, darker ; head subovate, a little

broader than thorax, strongly and thickly punctured, with a smooth space on centre of disc; antennæ red, shorter than in the preceding species, with joints 4-10 gradually a little shorter, penultimate joints not strongly oblong; thorax long, parallel-sided, strongly and coarsely punctured, with a smooth central line; elytra somewhat variable, usually as long as, or a little longer than, thorax, strongly and deeply punctured in regular rows; hind body with basal segments deeply impressed longitudinally, finely and thickly punctured; legs testaceous. L. 6-6½ mm.

Male with the seventh ventral segment of hind body impressed and very deeply and narrowly emarginate, sixth segment impressed, with two tubercles at base of impression.

In flood refuse, moss, dead leaves, &c.; in marshy places; also under stones on sides of hills, at roots of grass and plants near the sea-shore, &c.; local, but not uncommon; London district, widely distributed; Hastings; New Forest; Hythe; Malvern Hills (common under stones in spring); Midland districts, common; North Wales; Bridlington, Yorkshire; Liverpool; Northumberland district, rare; Scotland, rare, Tweed, Solway, and Argyle districts; Ireland, near Dublin; it is much rarer in the North than in the Midlands and Southern districts.

***L. angusticolle*, Lac. (*longicorne*, Redtb., *carinatum*, Bold).** A very distinct and elegantly shaped species, shining black, with the elytra bright red with base sharply black; head somewhat orbicular, large, distinctly broader than thorax, rather deeply and closely punctured; antennæ long and slender, dark pitchy red, longer than head and thorax united, with all the joints elongate; thorax long, much narrower than elytra, rather thickly punctured, with a plain, smooth, somewhat raised longitudinal space in centre; elytra evidently longer than thorax, rather strongly punctured in somewhat irregular rows which are more distinct towards base; hind body very finely and thickly punctured, clothed with fine greyish pubescence; legs black, tarsi red. L. 7 mm.

Male with the seventh ventral segment broadly impressed in middle, with the impression rugose in front and smooth behind and bounded on each side by a longitudinal crest or tuft of black hairs, apical border sinuate.

In flood refuse, &c.; rare; Oernant, near Llangollen, one specimen under a stone (Chappell); Northumberland district, rare, Devil's Water and Irthing (Bold); Scotland, Tweed, Forth, and Solway districts (Sharp, Allen Harker, &c.); Ireland, banks of Dodder near Firhouse, Dublin (McNab). The species has been obtained somewhat freely by Dr. Sharp in flood refuse; the refuse must be examined almost as soon as it has been thrown up, as the insect appears to leave it almost immediately.

ACHENIUM, Curtis.

This genus comprises about twenty-five species which are chiefly confined to Europe and the adjacent regions; three or four species occur in Madeira and the Canary Islands, and one is recorded from the East Indies; in many respects they resemble *Lathrobium*, but are easily distinguished by their exceedingly flat, depressed form; to judge by their

appearance they would be considered bark insects, but, although they occasionally are found under bark, yet as a rule they occur in moss, flood refuse, under stones, at roots of grass, &c.; there are only two British species.

1. Elytra bright testaceous red with at least basal third sharply black; apex of hind body concolorous or almost so *A. DEPRESSUM*, Grav.
2. Elytra dirty reddish or brownish red with the base often obscurely darker; apex of hind body broadly testaceous *A. HUMILE*, Nic.

A. depressum, Grav. Very flat, parallel-sided, shining black, elytra bright testaceous red with the base sharply black; head as broad as thorax, narrowed in front, sparingly punctured; antennæ rather long with all the joints oblong, last joint acuminate; thorax longer than broad widest in front and narrowed to base where it is narrower than elytra, sparingly punctured, with two double dorsal series of fine punctures, separated by a rather broad smooth interval; elytra about as long as thorax, finely and not closely punctured, the punctuation being sometimes in obsolete rows near base; hind body widened behind or subparallel, black with the apex usually concolorous, finely, thickly, and distinctly punctured; legs red, tarsi lighter. L. 7 mm.

Male with the seventh ventral segment of hind body broadly emarginate in a somewhat obtuse angle at apex, sixth slightly sinuate.

In moss, flood refuse, &c., usually in damp places; local; London district, generally distributed; Bognor; Hastings; Isle of Wight; Southsea; Harwich; Hythe; Shipley, near Horsham; Glanvilles Wootton; not recorded, however, except from the London district and the south.

A. humile, Nic. Smaller than the preceding and even more depressed; it may at once be distinguished by the colour of the elytra which are of a dirty reddish tint with the base sometimes obscurely darker, and by the apex of the hind body being broadly testaceous; the two dorsal series of the thorax are composed as a rule of single rows of punctures, and the punctures are not placed so closely together; the sexual characters do not differ materially. L. 6-6½ mm.

In moss, flood refuse, &c.; more widely distributed than the preceding, but generally considered less common; London district, not common, Chatham, Sheerness, Reigate, Lee, Walton-on-Thames, Kingston, Tonbridge, Cowley, Rainham, Dagenham, &c.; Shipley, near Horsham (in numbers); Hythe; Harwich; Holm Bush, Brighton; Hastings; Stratford; Gumley, Market Harborough; Salford Priors; Barnwood, near Gloucester (under bark of old stump); Repton, near Burton-on-Trent; I know of no locality further north.

CRYPTOBIUM, Mannerheim.

This genus was originally established for the single European species *C. glaberrimum*; it now contains about 160 species, of which about sixty have lately been described by Dr. Sharp from Central America; the other species are widely distributed in North and South America,

Australia, &c.; the sexual characters are often very peculiar; the large number of species which Mr. Champion captured in Central America were taken by him chiefly on the sandy banks of rivers and streams, especially in the dry season, but some occurred in dark places in the forests and others in the more open country; the species may be distinguished by the very long first joint of the antennæ, which gives them the appearance of being strongly geniculate.

C. glaberrimum, Herbst. (*fracticorne*, Payk., *brevipenne*, Muls.). Rather narrow and linear, shining black; head oblong, rather long, slightly narrower than thorax, more strongly and sparingly punctured on disc than at sides; antennæ lighter or darker pitchy-red, shorter than head and thorax united, joints 4–10 gradually shorter, the penultimate being hardly oblong, the first joint very long, equal to the four following united and forming a long scape, so that the antennæ appear strongly geniculate; thorax longer than broad, narrower than elytra, moderately punctured, with two distinct series of punctures on disc, separated by a smooth space; elytra variable less long or a little shorter than thorax, occasionally considerably shorter in which case the wings are either rudimentary or wanting, punctuation rather strong and more or less dense; hind body very finely and thickly punctured, finely and closely pubescent; legs testaceous, tibiæ often a little darker, coxæ reddish brown. L. $4\frac{1}{2}$ –5 mm.

Male with the seventh ventral segment of hind body deeply and narrowly incised, sixth impressed longitudinally, slightly emarginate at apex.

Marshy places in moss, especially sphagnum, at roots of grass, &c.; not uncommon; London district, general; New Forest; Portsmouth; Repton; Coleshill; Bewdley; Cannock Chase; Oxfordshire; Manchester district; Chat Moss; Scotland, common in the south, Tweed, Forth, and Solway districts; Ireland, Armagh, Galway, &c.: it probably occurs in the north of England.

STILICUS, Latreille. (*Rugilus*, Curtis.)

This genus comprises about forty or fifty species, which are very widely distributed throughout the world; ten are found in Europe, and the rest are found in Central Asia, Ceylon, Japan, North and South America (Columbia, Brazil, Chili, &c.), South Africa, Australia and New Guinea, &c.; the species are remarkable for their large heads which are often broader than the elytra, and the exceedingly narrow neck by which they are attached to the thorax, the thorax being strongly narrowed and brought to a point in front; some of them have very much the appearance of large ants; there are seven British species, one or two of which are very distinct, but some require care in their determination; the characters depending on the smooth central line of thorax (whether entire or abbreviated, &c.) are somewhat deceptive, as also are those depending on the colour of the legs, these being lighter in immature specimens; the

relative breadth of the head in comparison with the elytra (on which Mulsant and Rey lay great stress) is not always a very distinct character ; the table below given is formed on a combination of these distinctions, but should not be depended upon in all cases without reference to the more detailed descriptions ; the species are rapid in their movements, as might be expected from their long legs ; they occur in moss, cut grass, and other vegetable refuse, old bottoms of woodstacks, decaying faggots, hotbeds, &c.

- I. Thorax red S. FRAGILIS, Grav.
- II. Thorax black, concolorous.
 - i. Legs (except coxæ) unicolorous testaceous or reddish, not darker at knees.
 - 1. Head evidently transverse, broader than elytra ; elytra finely and diffusely punctured, at all events behind.
 - A. Size large ; head scarcely narrowed behind ; legs dark red S. RUFIPES, Germ.
 - B. Size smaller ; head strongly narrowed behind ; legs testaceous or reddish testaceous S. ORBICULATUS, Er.
 - 2. Head almost orbicular, about as broad as elytra ; elytra rather strongly and thickly punctured . . . S. SIMILIS, Er.
 - ii. Legs testaceous, with at least intermediate and posterior knees darker.
 - 1. Elytra plainly longer than thorax, with apex concolorous, finely and rather closely and distinctly punctured ; size larger S. SUBTILIS, Er.
 - 2. Elytra only slightly longer than thorax.
 - A. Thorax with central smooth line broad and at most channelled behind ; elytra with apex very narrowly, but distinctly, testaceous, finely and diffusely punctured ; intermediate and posterior tibiæ usually (but not always) dark S. AFFINIS, Er.
 - B. Thorax with central smooth line narrow and finely channelled throughout ; elytra with apex almost or quite concolorous, closely and strongly punctured ; knees only darker S. GENICULATUS, Er.

S. fragilis, Grav. (*scutellatus*, Mots.). Black, not very shining, with the thorax red ; head suborbicular, rather strongly narrowed behind, much broader than thorax, about as broad as elytra, finely, thickly, and rather rugosely punctured ; antennæ rather short, slightly thickened towards apex, with the penultimate joints about as broad as long, dark red, with apex lighter ; thorax oval, convex, longer than broad, rather finely, thickly, and rugosely punctured, with a narrow smooth longitudinal line in middle ; elytra a little longer and much broader than thorax, black with the posterior angles testaceous, rather finely, thickly, and roughly punctured ; hind body with sides somewhat rounded, rather thickly pubescent, very finely and thickly punctured ; legs long, ferruginous, more or less pitchy, variable. L. 6 mm.

Male with the fifth ventral segment of hind body furnished in the middle of its posterior margin with an oblong tubercle surrounded with a semicircle of cilia, sixth with a large deep excavation, of which the

sides are raised and project at apex, seventh angularly, but not deeply, emarginate.

In the damp bottoms of woodstacks, also in haystack refuse; very local, and usually considered rare, but it has occasionally been taken in abundance; Darenth Wood, Strood, Croydon, Forest Hill, Maidstone, Ealing, Chatham, Bearsted, Tonbridge, Crophamhurst, Godalming, Dorking; Reigate (Linnell), in numbers at bottoms of haystacks, &c.; Aspoll Wood, Suffolk, taken in abundance by the late Mr. Garneys in faggots placed in a dry ditch or watercourse to afford a road for the passage of waggons; Glanvilles Wootton, cucumber frame (Dale and Wollaston).

S. rufipes, Germ. One of our largest species; black, rather shining, head and thorax dull; head plainly transverse, scarcely narrowed behind, broader than elytra; antennæ rather short and robust, ferruginous, with apex sometimes lighter, penultimate joints somewhat transverse; thorax much narrower than head and elytra, rather strongly, very thickly, and rugosely punctured, with a narrow smooth central longitudinal line which is effaced in front, and often obsolete behind; elytra somewhat variable in length more or less evidently longer than thorax, finely and rather sparingly punctured, more sparingly behind, pitch-black, with apex often gradually lighter; hind body finely and thickly pubescent, and very finely and thickly punctured, apex pitchy; legs red, coxæ sometimes a little darker. L. $5\frac{1}{3}$ – $5\frac{3}{4}$ mm.

Male with the seventh ventral segment of hind body deeply and angularly excised, sixth impressed and broadly sinuate.

In moss, haystack refuse, hotbeds, &c.; common and generally distributed throughout the Midlands and districts south of Yorkshire; rarer further north; Northumberland and Durham district, rare, banks of Derwent and Tyne, and South Shields; Scotland, rare, Solway district only; Ireland, Dublin, Galway, Armagh, and probably generally distributed.

This species most closely resembles *S. subtilis*, but may be distinguished by its much broader and shorter head and unicolorous red legs.

S. orbiculatus, Er. (*nec* Payk., *Erichsoni*, Fauv.). One of the smaller species, black, rather shining, with head and thorax duller; head plainly transverse, strongly narrowed behind, rather strongly, very thickly, and rugosely punctured; antennæ short and somewhat stout, reddish testaceous, penultimate joints subtransverse; thorax rather strongly, very thickly, and rugosely punctured, with a distinct smooth central line which is usually channelled for almost all its length; elytra scarcely longer than thorax, rather finely and sparingly punctured, apex usually more or less testaceous; hind body very finely and thickly punctured; legs (including coxæ) testaceous or reddish testaceous. L. $3\frac{1}{2}$ mm.

Male with the seventh ventral segment of hind body slightly emarginate in an angle, sixth broadly emarginate.

In damp haystack refuse, sides of hotbeds, moss, at roots of grass, &c.; local, but not uncommon in many localities; Richmond, Reigate, Barnes, Wimbledon, Esher, Lee, Tonbridge, Bearsted, Maidstone; Hastings; Glanvilles Wootton; New Forest; Coles-hill; Knowle; Bewdley; Repton; Needwood Forest; Sherwood Forest; York; Man-

chester; Northumberland district; Scotland, local, Lowlands, Solway, Tweed, and Forth districts; Ireland, Dublin, Armagh, &c.

S. similis, Er. Intermediate in size between the two preceding; head somewhat orbicular plainly narrowed behind, almost as broad as elytra, very thickly and somewhat rugosely punctured; antennæ short, entirely red, with penultimate joints plainly transverse; thorax rather finely, very thickly, and rugosely punctured, with a distinct smooth central line reaching from apex to base, channelled throughout almost its entire length; elytra a little longer than thorax, rather strongly, deeply, and thickly punctured, with apical margin usually more or less testaceous; hind body rather more strongly rounded at sides and dilated behind than in some of the allied species, very finely and thickly punctured; legs testaceous or reddish-testaceous with the coxæ pitchy black. L. 5 mm.

Male with the seventh ventral segment of hind body rather sharply, but not deeply, excised, sixth furnished with a broad semicircular depression, the edges of which are raised behind and project on each side in a small tooth.

In moss, cut grass, &c., also sometimes under stones; often in dry and chalky localities; very local; Mickleham, Box Hill, Reigate; Kidderminster; Shirley Warren, Southampton; Exeter; Ireland, near Waterford (Power).

S. subtilis, Er. This is the largest British species with the exception of *S. fragilis*; it is on the average a little longer than *S. rufipes*, from which it may be easily distinguished by its much longer and evidently narrower and more orbicular head, and by having the thorax narrower and more gradually brought to a point in front; the legs also are lighter coloured and the knees (at all events the intermediate and posterior ones) distinctly infuscate; this point will also distinguish it from *S. similis*; it is much larger than *S. geniculatus* and *S. affinis*, and has the elytra evidently longer in proportion to thorax; the smooth central line of thorax is somewhat variable as in some of the other species. L. $5\frac{1}{2}$ –6 mm.

Male with the seventh ventral segment of hind body rather broadly emarginate at apex.

In moss, dead leaves, decaying vegetable matter, damp twigs, &c., usually in chalky places; very local; Chatham, Caterham, Reigate, Sanderstead, Warlingham, Godalming, Tonbridge, Birdbrook; Riddlesdown; Bognor; Hastings.

S. affinis, Er. (*fuscipes*, Er., *orbiculatus*, Payk. et Fauvel, nec Er.). Shining black, head and thorax duller; head somewhat transversely orbicular, a little variable, about as broad as elytra, very thickly and rugosely punctured; antennæ short, pitchy red, with penultimate joints subtransverse; thorax rather strongly, very thickly, and rugosely punctured with central smooth line rather broad, and at most channelled behind; elytra a little longer than thorax, finely and rather sparingly punctured; hind body very finely and thickly punctured; legs testaceous, with the coxæ pitchy brown or red, the knees, tibiæ, and sometimes the

tarsi more or less infusate, intermediate and posterior tibiæ often almost entirely black. L. $4\frac{1}{2}$ mm.

Male with the sixth ventral segment of hind body slightly and broadly emarginate at apex, sometimes depressed in middle, seventh more deeply and narrowly emarginate in a rounded angle.

In damp haystack refuse, hotbeds and vegetable rubbish generally, also in moss, at roots of grass, &c.; very common and generally distributed in England; rarer further north; Scotland, not common, Solway, Tweed, and Forth districts; Ireland, Dublin, Armagh, Waterford, Galway, and probably generally distributed.

S. geniculatus, Er. (*similis*, var. *b*, Heer). This species is of about the same size as the preceding, but may be distinguished by the elytra being strongly and closely punctured, and the narrower central line of thorax, which is channelled for all, or the greater part of, its length; the apex of the elytra is usually concolorous or almost concolorous, whereas in *S. affinis* it is more or less distinctly testaceous; as a rule it may be easily distinguished by having the knees only of the intermediate and posterior legs dusky, but as this is a somewhat variable character in *S. affinis*, the other differences must always be taken into consideration; the male characters are peculiar and closely resemble those of *S. similis*; in fact this species bears a strong affinity to this latter insect, but it is a little smaller as a rule, and has the elytra rather more closely punctured; the colour of the knees will, as a rule, at once separate it, as in *S. similis* the legs are entirely testaceous, with the exception of the coxæ. L. $4\frac{1}{2}$ – $4\frac{2}{3}$ mm.

In moss on chalky hill-sides, at roots of grass in marshy places, in haystack refuse, &c.; local; London district, Kent and Surrey, &c., very generally distributed, Chatham, Lee, Maidstone, Barnes, Putney, Wimbledon, Walton, Egham, Box Hill, Caterham, Croydon, Shirley, Staines, Hammersmith, Tonbridge, Bearsted, Cowley: I know of no record outside the London counties except Galway, Ireland, where it has been taken by Mr. J. J. Walker. Mulsant and Rey mention it as being very rare in France.

SCOPEUS, Erichson.

This genus comprises about sixty species, which are very widely distributed over the greater part of the world, representatives occurring in Japan, Ceylon, Chili, the Amazon district, Australia, &c.; some of these are very closely allied to one another and can scarcely be separated without reference to the œdeagus or the chitinous portion of the male genital organs, which in this and other genera often affords important characters; there are about a dozen European species, of which we possess three or four as British; they are very small, narrow, and linear, and occur in moss, under stones, in vegetable refuse, &c.; all our species are rare and are seldom met with.

I. Head longer, suboval; antennæ elongate; elytra finely punctured, smooth and shiny S. ERICHSONI, Kol.

- II. Head shorter, more or less subquadrate; antennæ short; elytra more coarsely punctured, more or less dull.
- i. Head dull, about as closely punctured as elytra, and not less finely; size smaller S. RUBIDUS, Rey.
 - ii. Head shiny, much more finely punctured than elytra; size larger.
 1. Intermediate tibiæ slightly dilated and rounded or almost rounded at apex; head less finely punctured S. SULCICOLLIS, Steph.
 2. Intermediate tibiæ rather strongly dilated, and very obliquely cut off at apex; head more finely punctured S. COGNATUS, Rey.

S. Erichsoni, Kol. (*gracilis*, Sperk., *apicalis*, Rey). Linear, elongate, rather depressed, pitchy-red, with the head and hind body, except apex, usually darker, and the elytra lighter; head somewhat ovate, scarcely broader than thorax, forehead very broad, widely impressed in front; antennæ testaceous, long and slender, almost as long as head and thorax united, with the first joint long, rather broad, and somewhat cylindrical, and joints 8–10 a little longer than broad; thorax evidently longer than broad, obliquely narrowed in front, and with posterior angles strongly rounded, together with head exceedingly finely punctured, furnished at base with two distinct impressions separated by a narrow raised longitudinal keel; elytra longer than broad, about a quarter longer than thorax, depressed, extremely finely and thickly punctured, smooth and rather shining; hind body rather strongly margined, a little widened behind, very finely shagreened; legs reddish testaceous. L. 3–3½ mm.

Male with the fifth and sixth ventral segments of hind body slightly impressed in middle, sixth slightly sinuate on apical margin, seventh longitudinally impressed, with the apex broadly emarginate, the emargination being furnished with a tooth in centre.

On the banks of streams, in flood refuse, &c.; rare; North Wales; Slapton Ley, Devonshire; Scotland, rare, riparial, Solway district, Dumfries.

S. lævigatus, Gyll., has been often given as a synonym of *S. Erichsoni*, but apart from other differences, in the shape of the head, &c., the male characters are quite different, the emargination of the seventh segment being deeper and terminating on each side in two strong teeth; it is possible that we possess both species.

S. rubidus, Rey (*subcylindricus*, Scriba, *Ryei*, Woll.). Smaller and narrower than *S. sulcicollis*, and usually of a paler colour; it may at once be distinguished from our other species by the dull, opaque appearance of its head and thorax which arises from the closer punctuation; the segments of the hind body are less divided *inter se*, and the legs are thinner and less developed, the tarsi being evidently shorter; in the male the seventh ventral segment of hind body is foveolate on its disc, and deeply and rather broadly emarginate at apex. L. 2½ mm.

This species has only occurred in one British locality, Slapton Ley, Devonshire, where it was taken sparingly by Mr. Wollaston in May 1869 and 1872 under stones in dry places

close to the sea; it appears to occur rarely in France on the banks of rivers and streams.

S. sulcicollis, Steph. (*minutus*, Er., *pusillus*, Kies., *debilis*, Rey). This species is easily distinguished from *S. Erichsoni*, which it resembles in general appearance, by its subquadrate head which is somewhat widened behind, much shorter antennæ of which the penultimate joints are feebly transverse, and more oval thorax; the almost smooth and shining head and thorax and much duller and more coarsely punctured elytra are, however, perhaps, the best distinctive character; in the male the sixth ventral segment of hind body is very obsoletely bisinuate on apical margin, and the seventh is rather deeply and somewhat angularly emarginate; in the female the seventh ventral segment is produced in a rounded angle. L. $2\frac{2}{3}$ –3 mm.

In moss, vegetable refuse, &c.; also on the banks of streams, under stones in fields and gardens and in other localities; rare; Shirley (Surrey), Lee, Reigate, Darenth, Mickleham, Colney Hatch, Tonbridge; Southend; St. Peter's, Kent; Hastings; Isle of Wight; Kemp Town, Brighton; Oxfordshire.

S. cognatus, Rey. Very closely allied to the preceding, but with the head more sparingly punctured, and the intermediate tibiæ more dilated; in the male the seventh ventral segment of hind body is rather broadly emarginate in a rounded angle, and the emargination is surrounded by an impression which makes its edges appear raised. L. $2\frac{1}{2}$ –3 mm.

I feel rather doubtful of this species, but a specimen taken by Mr. E. Saunders at Ventnor, Isle of Wight, and which he separated as distinct from *S. sulcicollis*, has been returned to me by M. Fauvel as this insect; the specimen, unfortunately, is a female, so that the sexual characters are not apparent; the apex, however, of the seventh ventral segment is much more sharply produced than in the corresponding sex of *S. sulcicollis*. M. Fauvel also was kind enough to send me another specimen taken at Wingham near Sandwich, but I cannot distinguish this from ordinary specimens of *S. sulcicollis*. The three last species belong to the genus *Polyodontus* of Solier.

MEDON, Stephens.

This genus, as now constituted, comprises by far the greater portion of the old genus *Lithocharis*; in fact only one representative of the latter genus appears to occur in Europe; the characters separating the two genera have not until recently been satisfactorily determined, but Dr. Sharp in his work on the Staphylinidæ of Central America (Biol. Cent. Am. vol. i., part 2., p. 549) has lately pointed out that in *Lithocharis* the process of the prosternum above the front coxæ is but slightly developed, whereas in *Medon* the prosternum is prolonged to form a process resting on the front of the mesosternum; with regard to this Dr. Sharp makes

the following remarks :—"This character appears to me of primary importance in the classification of the genera hitherto associated under the name of *Lithocharis*, and to it I would add the structure of the labrum, the width of the neck, the dilatation of the front tarsi, the relative proportions of the joints of the hind tarsus, and the structure of the fourth joint of the latter organ ; by so doing a series of very natural genera is obtained, while on the other hand if this be not attended to, it will be found impossible to separate *Lithocharis* from the genera near *Lathrobium* at the one extremity, and those near *Sunius* at the other." The united genera contain upwards of 150 species from all parts of the world, the great majority of which belong to *Medon* ; there are eleven indigenous species, some of which are among the rarest of our Staphylinidæ, one or two indeed being unique or almost unique as British ; they occur chiefly at the bottoms of haystacks, in moss, dead leaves, &c. ; several of them are very closely allied, and require great care in their determination, the distinctions being chiefly comparative.

- I. Temples almost meeting beneath, or separated by a very narrow interval ; upper surface more or less brown or pitchy, or pitchy black with red elytra.
(*Medon*, i. sp.)
 - i. Length 6 mm. ; head oblong ; posterior tarsi as long as the tibiæ M. CASTANEUS, Grav.
 - ii. Length not exceeding 5 mm., usually less ; head subquadrate ; posterior tarsi distinctly shorter than tibiæ.
 1. Upper surface black or pitchy black, with elytra bright red ; head coarsely punctured ; thorax with central smooth line distinct . . . M. POCOFER, Peyr.
(*maritimus*, Aubé).
 2. Upper surface more or less castaneous or pitchy, sometimes in part ferruginous.
 - A. Thorax without apparent central smooth line, evenly punctured throughout M. DILUTUS, Er.
 - B. Thorax with central smooth line more or less distinct.
 - a. Head and thorax pitchy black, with a very distinct smooth central line on each . M. PICEUS, Kr.
 - b. Head pitchy, thorax and elytra reddish castaneous, with smooth central line obsolete on the former and more or less distinct on the latter.
 - a*. Elytra about as long as thorax, punctuation of head distinct and rather deep. M. BRUNNEUS, Er.
 - b*. Elytra distinctly longer than thorax ; punctuation of head confused and finer. M. FUSCULUS, Mann.
 - c. Head black or blackish, extremely finely punctured ; form narrower and more slender.
 - a*. Thorax broader in proportion to elytra ; central smooth line of thorax more or less distinct throughout ; apex of mesosternum with a short keel . . . M. RIPICOLA, Kr.
 - b*. Thorax narrower in proportion to

- elytra; central smooth line of thorax only distinct behind; apex of meso-sternum without keel *M. APICALIS*, *Kr.*
- II. Temples separated beneath by a moderate interval; thorax in our species bright testaceous red. (Sub-Gen. *Hypomedon*, Muls. et Rey.)
- i. Head shagreened between the punctures;* elytra evidently longer than thorax *M. PROPINQUUS*, *Bris.*
- ii. Head smooth between the punctures; elytra about as long as or apparently a little shorter than thorax *M. MELANOCEPHALUS*, *F.*
- III. Temples separated beneath by a broad interval. Upper surface entirely dull black or pitchy black, extremely finely and closely punctured; thorax without trace of central smooth line. (Sub-Gen. *Pseudomedon*, Muls. et Rey.) *M. OBSOLETUS*, *Nord.*

M. castaneus, Grav. (*Ruddii*, Steph., *procerus*, Per.). Elongate, somewhat depressed, castaneous, or reddish castaneous, with the elytra and apex of hind body ferruginous, clothed with fine greyish pubescence which is closer on the hind body; head oblong, a little longer than broad, rather strongly, thickly, and somewhat rugosely punctured, with a slight smooth central line; antennæ rather long, a little shorter than head and thorax united, scarcely thickened, with the penultimate joints oblong, ferruginous red; thorax about as long as broad, with apical and basal margins almost straight, narrowed behind, rather strongly, thickly, and rugosely punctured, with a narrow smooth longitudinal central line; elytra plainly longer than thorax, finely, very thickly, and somewhat rugosely punctured; hind body subparallel, narrowed at apex, very finely and thickly punctured; legs ferruginous red, posterior tarsi very long and slender, with the first four joints elongate. L. $5\frac{3}{4}$ –6 mm.

Male with the seventh ventral segment excised at apex in a sharp angle, sixth somewhat sinuate at sides, and broadly emarginate in middle of apical margin.

Sandy places in moss, under stones, &c.; very rare; New Forest (Rudd); Wimbledon; Esher (E. Saunders); Deal (C. G. Hall, from whom I received a single specimen among some other beetles sent me for names); it appears to be a very rare species on the Continent.

M. pocofer, Peyr. (*maritimus*, Aubé). A somewhat depressed, and proportionally broad, species; shining pitch-black with the elytra bright red (the scutellary region being more or less dark), and the apex of hind body pitchy red; head broad, somewhat transverse, rather strongly and thickly punctured, with obsolete smooth central line; antennæ moderate, reddish testaceous, with penultimate joints scarcely transverse; thorax about as long as broad, plainly narrowed behind, rather strongly and thickly punctured, with broad and distinct smooth central line; elytra evidently longer than thorax, strongly and thickly

* This character requires a compound microscope to show it properly, but it is exceedingly reliable; its use has been already pointed out in the genus *Laccobius* (*ante*, Vol. I. p. 228).

punctured; hind body subparallel, somewhat narrowed just before apex, finely and thickly punctured, clothed with greyish pubescence; legs rather stout, red, posterior tarsi evidently shorter than tibiæ. L. $4\frac{1}{2}$ –5 mm.

Male with seventh ventral segment of hind body deeply emarginate in an obtuse angle, sixth rather broadly and deeply emarginate.

A marine species, only found among shingle or under sea-weed just above or somewhat below high-water mark; very local and usually rare; Isle of Wight and the coast of the mainland opposite; Shoreham, Worthing, &c.; also recorded by Bold as rare on the coast near South Shields. I have taken the insect in considerable numbers in spring near Ventnor: it is very rapid in its movements, and, as it usually occurs in shingle under large stones, is very hard to secure, as the instant the stones are disturbed it dives into the shingle; the shingle under the stone must therefore be carefully searched to the bottom, or the stone must be suddenly thrown over and the shingle immediately thrown over a sheet; in this way specimens may be secured when all other means have failed.

M. dilutus, Er. This species is closely allied to *M. fuscus* and *M. brunneus*, but is distinctly broader and flatter, and may be distinguished from them by having the third joint of the antennæ distinctly longer than the second (instead of about equal to it or a little longer as in those species), and the punctuation of the head and thorax exceedingly fine and close, and especially by the absence of an apparent central smooth line on thorax; the elytra are very thickly and finely and somewhat rugosely punctured. L. 4 mm.

A single specimen only is known as British; this was taken on the banks of the Cairn, Solway district, Scotland, by Dr. Sharp; according to Mulsant and Rey it is very rare in France, and occurs under bark and in moss on trees.

M. piceus, Kr. This very distinct species may be at once known by its colour, which is dark pitchy, with the elytra slightly lighter; the antennæ and legs are ferruginous, and the former have the six basal joints darker than the remainder; sometimes the two or three apical joints only are lighter; the insect is of about the same build as *M. brunneus*, but is a little smaller, and may be distinguished from it, apart from the above-mentioned characters, by the plain longitudinal central line on the head, which latter is more finely and closely punctured, the more slender antennæ, more obsoletely punctured thorax, and proportionally longer elytra. L. $3\frac{1}{2}$ mm.

In the male the seventh ventral segment of hind body is angularly emarginate at apex, but the sixth is almost simple; in this point the species differs from several of its allies.

Under dead leaves in woods, in autumn; very rare; Bexley Wood, Kent (Champion); Darenth Wood (T. Blackburn, one specimen).

M. brunneus, Er. Rather parallel, and somewhat proportionally robust, head, and hind body (except apex) more or less pitchy, thorax and elytra reddish castaneous; sometimes the whole surface is almost

unicolorous reddish-castaneous; head a little wider than thorax, subquadrate, strongly and thickly punctured; antennæ short, reddish, penultimate joints slightly transverse; thorax subtransverse, or a little longer than broad, slightly narrowed behind, strongly and thickly punctured, with central line obsolete in front, but distinct in middle; elytra about as long as thorax, and more confusedly punctured; hind body rounded at sides and narrowed behind, very finely and thickly punctured; legs reddish testaceous. L. $3\frac{3}{4}$ –4 mm.

Male with the seventh ventral segment of hind body deeply sinuate at apex, sixth broadly and slightly emarginate in middle of apical margin, with the sides of emargination produced at apex.

In moss, dead leaves, &c.; local, but not uncommon in some localities; Birch Wood, Chatham, Cobham, Caterham, Mickleham, Sanderstead, Box Hill, Faygate, Highgate, Bishops Wood; Bognor; Hastings; Isle of Wight, Parkhurst Forest, &c.; Barmouth; Dudley; Bewdley; Oxfordshire.

M. fuscus, Mann. (*rufus*, Rey). Extremely like the preceding in size, general appearance, and colour; it may, however, be easily distinguished by having the elytra considerably longer than thorax, and also by the much closer and more confused punctuation of the head; the thorax also is more closely punctured; the antennæ are slightly longer; in the male the sixth ventral segment of hind body is more deeply emarginate, and the sides of the emargination are produced at apex on each side in the form of a black tooth. L. 4 mm.

In moss, vegetable refuse, dead leaves, &c.; local; Westerham, Dulwich, Forest Hill, Caterham, Shirley, Mickleham, Bearsted, Purley, Birdbrook, Tonbridge; Hastings; Eastbourne; Brighton; recorded by Bold from South Shields, rare; with this exception there is no record that I can find from any place further north than the London district.

M. ripicola, Kr. This species may be known by its colour and general appearance; head blackish, thickly and finely punctured, rather dull; thorax reddish castaneous, very shining, finely and thickly punctured, with the smooth central line more or less distinct throughout, sides scarcely narrowed behind; elytra brownish-red, darker and duller than thorax, and nearly half as long again, very thickly and finely punctured; hind body darker and duller than elytra; antennæ and legs reddish yellow; from *M. fuscus* and *a fortiori* from *M. brunneus* it differs by its longer elytra and much finer punctuation; it is also narrower and more slender; in the male the seventh ventral segment of hind body is deeply sinuate at apex, and the sixth is very broadly emarginate, the emargination itself being again slightly emarginate in centre of margin. L. 4 mm.

Five specimens were taken by Mr. Douglas, on May 19th, 1861, under sea-weed on the shore near Southampton; I know of no other recorded capture; according to Mulsant and Rey the species is common throughout France in moss, vegetable refuse, under stones, &c., especially in damp localities.

M. apicalis, Kr. (*sericellus*, Fairm.). Reddish-castaneous, rather dull, with the head black or blackish, and the apex of elytra, at all events at posterior angles, dark; it comes very near to *M. ripicola*, but may be distinguished (apart from the colour of the elytra, which is not always to be relied upon) by having the thorax narrower in proportion to the elytra, and the fact that the central smooth line of the former is only distinct behind; the antennæ are somewhat shorter and have the joints more moniliform; the hind body is usually darker, but this is variable; the mesosternum where it comes to a point at apex is not keeled in this species, whereas in *M. ripicola* it is furnished with a small but distinct keel, and in the male the sixth ventral segment of hind body, instead of being deeply emarginate as in the last-mentioned species, is only very shallowly bisinuate. L. $3\frac{1}{2}$ mm.

In moss, dead leaves, haystack refuse, &c.; very rare; Reigate (E. Saunders); Erith.

M. propinquus, Bris. (*vicinus*, Bris., *lætus*, Thoms.). Somewhat linear and elongate, with the head black, the thorax testaceous red, the elytra pitchy red, often brownish, and the hind body dull black, with apex more or less reddish; head subquadrate, parallel-sided, about as broad as thorax, rather thickly punctured at sides, disc nearly smooth, the whole surface between the punctures very plainly shagreened (if viewed under a high magnifying power); antennæ short, with penultimate joints subtransverse, red, or pitchy red, with base and often apex lighter; thorax subquadrate, or scarcely longer than broad, with sides parallel, finely and rather thickly punctured with a distinct smooth longitudinal central line; elytra evidently longer than thorax, finely, thickly, and somewhat asperately punctured; hind body very finely and thickly punctured; legs lighter or darker testaceous. L. 3 mm.

Male with the seventh ventral segment of hind body broadly and somewhat angularly emarginate at apex, sixth segment simple.

In moss, haystack refuse, &c.; common and generally distributed throughout the southern and midland districts of England; not recorded, however, from further north than Liverpool, or from Scotland; Ireland, Galway. This species is, however, so often confused with the following that the localities cannot altogether be depended upon.

M. melanocephalus, F. (*nec* Er. ?) (*bicolor*, Ol., ? *var.*). Very closely allied to the preceding, but easily distinguished by the shorter elytra, which are about the length of the thorax (and often appear even somewhat shorter), and are slightly dilated behind; the most reliable character, however, is found in the fact that the head is quite smooth and not shagreened between the punctures; in the male the sixth ventral segment of the hind body is slightly but plainly emarginate in middle of apical margin, and has a smooth longitudinal impression before the emargination, whereas in the male of *M. propinquus* this segment is quite simple. L. 3 mm.

In moss, haystack refuse, &c. ; common and generally distributed throughout the southern and midland districts of England ; rarer further north ; Northumberland district, banks of streams, not common ; Scotland, Lowlands, rare, Solway district only ; Ireland, near Belfast, Waterford, &c.

We also appear to possess as British the closely allied species *M. bicolor*, Ol. ; the differences, however, between this and the preceding are so slight that it would hardly seem to be more than a variety ; it is proportionally broader than *M. melanocephalus*, and a little more thickly punctured, and the head is a little less parallel ; these differences, however, are extremely slight ; the elytra are very slightly longer, and the head and thorax are evidently more thickly punctured at the sides. This species, or variety, appears to be rather uncommon on the Continent ; it occurs under stones and moss in company with ants ; there are specimens in Dr. Power's collection, from the London district, which seem to agree with descriptions of this insect, and it may be somewhat widely distributed in the midland and southern districts.

M. obsoletus, Nord. Entirely dull black, or pitchy black, clothed with very fine, short, and close greyish pubescence, the whole upper surface very finely and thickly punctured ; head subquadrate, much narrowed in front of eyes ; antennæ long, as long as head and thorax united, penultimate joints about as long as broad, brownish red with basal joint and often apical joints clear red ; thorax subquadrate, scarcely narrowed behind, without trace of central smooth line ; elytra evidently longer and much duller than thorax ; hind body very dull, very finely punctured or shagreened ; legs pitchy red, with tarsi lighter. L. $3\frac{1}{3}$ mm.

Male with the seventh ventral segment of hind body feebly and rather broadly sinuate at apex, sixth segment simple ; anterior tarsi very strongly dilated in an oblong ; in the female the anterior tarsi are only slightly dilated.

In haystack refuse, &c. ; often in hotbeds ; rare ; Norwood, Notting Hill, Ealing, Mickleham, Chobham, Shiere, Tonbridge ; The Holt, Farnham ; Harwich ; Herne Bay ; Glanvilles Wootton ; Littleington, Sussex ; Oxfordshire ; Burton-on-Trent ; South Shields, Durham, very rare, in May (Bold) ; Scotland, Solway district only, very rare. This species is found rarely in France in damp moss in marshes.

LITHOCHARIS, Lacordaire.

This genus, as at present limited, is, according to Dr. Sharp, characterized by the small development of the supra-coxal process of the prosternum, by the undilated front tarsi, and by the four basal joints of the hind tarsi decreasing gradually in length, the fourth joint being simple in structure, and interposed in the normal manner between the third and fifth ; it is represented in the warmer regions of Asia and Africa, and Dr. Sharp has lately described three or four species from Central

America; the single European species, which is very common, has been distributed by commerce, so that it is nearly cosmopolitan.

The larva of *Lithocharis ochracea* is described by Mulsant and Rey, Brévipennes, Pédériens, p. 177: it is slightly convex, sparingly clothed with setæ, elongate, with the sides slightly enlarged and rounded behind, of a shining livid red colour, with the abdomen paler; head large, subquadrate, almost longer than broad, a little broader than thorax; antennæ short; thorax oblong, a little narrowed in front, smooth on disc, and marked on each side with two shallow oblique impressions, about as long as the meso- and meta-thorax together; abdomen with the first seven segments short nearly equal, the eighth narrower, and the ninth narrow bearing two cerci and an anal appendage; legs short.

This larva, according to Mulsant and Rey, has the head somewhat resembling that of the larvæ of the Xantholininæ, but it is less linear and has the abdomen shorter and more rounded at the sides: it is found in hotbeds and dung-heaps.

L. ochracea, Grav. (*brunniceps*, Fairm.). Ferruginous or brownish-yellow with the head black; head somewhat triangular, about as broad as thorax, very finely and thickly punctured; antennæ testaceous or reddish, rather robust, moderately long, with penultimate joints subtransverse; thorax subquadrate, a little longer than broad, narrower than elytra, parallel-sided, very finely and thickly punctured, with a fine smooth longitudinal central line; elytra about a third longer than thorax, very finely, thickly, and somewhat asperately punctured; hind body narrowed towards apex, finely shagreened; legs testaceous. L. $3\frac{1}{3}$ –4 mm.

Male characters very peculiar, the seventh ventral segment being deeply emarginate and having the sides of the emargination produced at apex in the form of two very long lobes, sixth segment feebly and broadly emarginate with a tuft of dark cilia on each side of the emargination.

In haystack refuse, dung-heaps, hotbeds, &c.; common and generally distributed throughout England; less common further north; Scotland, not common, but widely distributed, Tweed, Forth, Dee, and Moray districts; Ireland, Dublin and Armagh, and probably generally distributed.

SUNIUS, Stephens.

This genus is distinguished from all the other Pæderinæ with five-jointed tarsi, except *Pæderus*, by having the penultimate joint of the tarsi bilobed; from *Pæderus* it differs in the much larger size of the species, and the fact that the penultimate joint of the tarsi is furnished with membrane beneath; the genus comprises more than 150 species, which are very widely distributed over nearly the whole surface of the globe; there are only about sixteen European species, of which four are British.

I. Elytra about as long as thorax or very little longer.

- i. Elytra dull, rather broadly testaceous at apex, less coarsely punctured; hind body very long S. FILIFORMIS, Latr.
- ii. Elytra shining, very narrowly testaceous at apex,

- more coarsely punctured; hind body moderately long S. INTERMEDIUS, *Er.*
- II. Elytra distinctly longer than thorax, with apex more or less broadly testaceous.
- i. Head evidently longer than broad; elytra with apical testaceous border broad reaching from side to side S. DIVERSUS, *Aubé.*
- ii. Head subquadrate, about as long as broad; elytra with apical testaceous border usually margined with black nearly to apex, sometimes taking the form of a double spot S. ANGUSTATUS, *Payk.*

S. filiformis, Latr. (*procerus*, Grav., *extensus*, Mannh.). Very elongate, narrow, and linear, dull black, with the three last segments of hind body shining, apex of elytra broadly testaceous; head slightly longer than broad, rather finely and very thickly punctured; antennæ testaceous, slender, with the third joint longer than second, and joints 4-10 oblong; thorax somewhat cordiform, with sides strongly narrowed behind, rather finely, very thickly and rugosely punctured; elytra narrow, longer than broad, slightly longer than thorax, rugosely and very thickly punctured; hind body very long, rather finely and thickly punctured on the first three segments, less closely on the rest; legs testaceous, with posterior coxæ dark. L. $4\frac{1}{2}$ mm.

Male with the seventh ventral segment of hind body narrowly and very sharply excised at apex, sixth very feebly sinuate.

In moss, at roots of grass, &c., generally in chalky or sandy places near the coast; rare; Kemp Town, Brighton, in some numbers (Power); Whitsand Bay, Plymouth (J. J. Walker); Forest Hill and Burntash Lane (Power); Tewkesbury (Blatch).

S. intermedius, *Er.* (*immaculatus*, Steph.). This species is easily distinguished from the other British species by having the elytra to all intents and purposes entirely black, the apical margin being so narrowly testaceous that it is often hardly apparent; the elytra, moreover, are more coarsely punctured than in any of the other species; in this character, however, there appears to be some variation; in the male the sixth ventral segment of hind body is obsoletely impressed longitudinally in centre, and broadly sinuate at apex, and the seventh has a sharp angular emargination. L. $3\frac{1}{2}$ - $3\frac{3}{4}$ mm.

In haystack refuse; also in moss, flood refuse, &c., in marshy places; local, but sometimes very abundant where it occurs; Lee, Sheerness, Toubridge; Harwich; Sandwich; Holm Bush, Brighton; Isle of Wight, Luccombe Chine, &c.; Llangollen; Tewkesbury.

S. diversus, *Aubé* (*pulchellus*, Heer, *fasciatus*, Mots.). In general shape much the same as *S. filiformis*, except that the hind body is not so elongate; head longer than broad, hardly as broad as thorax, head and thorax very thickly and rugosely punctured; elytra evidently longer than thorax rather strongly and thickly punctured; hind body a little dilated behind middle, rather finely, thickly, and somewhat

roughly punctured; legs testaceous, with the posterior coxæ dark. L. $3-3\frac{1}{2}$ mm.

Male with the seventh ventral segment of hind body deeply emarginate in an angle at apex.

In vegetable refuse, dung-heaps, &c.; often unaccompanied by the succeeding species, from which when alive it has a different facies; apparently local, but often confused with *S. angustatus*; Rusper, Lee, Esher, Cowfold, Forest Hill; Newnham-on-Severn; Lincoln; Knowle; Tewkesbury.

In the Proceedings of the Entomological Society of London for the 7th of March, 1870, Mr. Gorham introduced a species as *S. neglectus*; this species is apparently the true *S. angustatus* of Paykull, and the insect which he understood by *S. angustatus* is the *S. diversus* of Aubé; considerable confusion has existed with regard to these species, and in some books the descriptions are reversed and applied to the wrong insect in each case.

***S. angustatus*, Paykull.** This very distinct species may be easily known from the preceding by its subquadrate and evidently broader head, which is a little broader than the thorax; its general form is thicker, less slender, and less linear; the apical testaceous border of elytra is generally more or less broadly bordered with black on each side almost to apex, and often takes the form of a common or double spot; the colour both of this and the preceding species is somewhat variable, and occasionally the entire body is ferruginous or reddish testaceous, with the head and part of the hind body darker, or entirely reddish. L. $3-3\frac{1}{2}$ mm.

In moss, haystack refuse, &c.; common throughout the greater part of England; rarer further north, and not recorded from the Northumberland district; Scotland, not common, Tweed, Solway, Forth, and Tay districts; Ireland, near Dublin and Waterford, and probably common.

PÆDERUS, Fabricius.

This genus contains more than a hundred species, which are very widely distributed over the world, more especially in hot and tropical climates; only about a dozen occur in Europe, of which four are found in Britain; these are very conspicuous insects, being moderately large, of a bright red or reddish testaceous colour, with the head and apex of hind body black and the elytra more or less brightly metallic blue or greenish; many of them are so closely allied that they can only be distinguished by the structure of the cedeagus; the brachypterous forms, according to Mr. Champion, are arboreal in their habits: a detailed description of each of our species is unnecessary; in the male the sixth ventral segment of hind body is simple or almost simple, and the seventh is broadly and deeply emarginate, the emargination being rounded at apex, and slightly differing in shape in the various species; they occur in

moss, under stones, at roots of grass, &c., in damp and marshy places; only one species, as might perhaps be expected, is found in Scotland, and this only very locally in the extreme south.

- I. Mandibles black; tibiæ testaceous; elytra about as long as thorax; species apterous *P. LITTORALIS*, Grav.
- II. Mandibles testaceous; elytra longer than thorax; species winged.
 - i. Tibiæ more or less testaceous, at most partially fuscous.
 - 1. Size larger; thorax broader in proportion to elytra; elytra not much longer than thorax *P. RIPARIUS*, L.
 - 2. Size smaller; thorax narrower in proportion to elytra; elytra half as long again as thorax *P. FUSCIPES*, Curt.
 - ii. All the tibiæ black; elytra not much longer than thorax *P. CALIGATUS*, Er.

P. littoralis, Grav. (*gregarius*, Scop., *vulgaris*, Mill, † *cephalotes*, Mots.). Of a brilliant red colour, with the elytra metallic blue, and the head and sixth and seventh segments of hind body black; head rather large, subtransverse and broader than thorax in male, somewhat orbicular and narrower in female, rather strongly and sparingly punctured with the centre of disc smooth; antennæ rather long, testaceous, with more or less of the apical joints fuscous, sometimes infusate with base testaceous, penultimate joints longer than broad; thorax convex, somewhat globose, almost as broad as long in front, strongly narrowed behind, where it is narrower than the base of the elytra, with two series of fine punctures on disc and the sides diffusely punctured; scutellum dark red; elytra about as long as thorax, rather strongly and not closely punctured, punctuation somewhat variable; hind body subparallel, narrowed sharply at apex, finely and rather sparingly punctured, rather strongly pubescent; legs reddish testaceous, with the apex of femora broadly, and the posterior coxæ, black. L. 7 mm.

In moss, at roots of grass, under stones, &c.; common and generally distributed in England from the north-midland counties southwards; rarer further north and not recorded from the Northumberland and Durham district; it has been stated to occur near Edinburgh, but Dr. Sharp (Scot. Nat. vol. iii., p. 35) considers that the record was probably erroneous; it has not been recorded as yet from Ireland, but most likely occurs in the south at all events; the insect is exceedingly common in the south of England, and by its striking appearance often attracts the notice of the casual observer.

P. riparius, L. (*longicollis*, Gaut.). About the same length as the preceding, but a little narrower; it may be easily distinguished by the shape of the thorax, which is considerably narrower and less convex, and is considerably longer than broad at its widest part; the elytra are longer, and the insect is winged; the mandibles and the posterior coxæ are reddish testaceous and not black as in *P. littoralis*, and the mesosternum also is red, and has the apical process less prolonged and less evidently keeled; the tibiæ, especially the posterior ones, are often a little fuscous; the colour of the elytra is variable, being bluish, violet, and sometimes greenish; all the species, however, vary more or less in this respect. L. 7 mm.

Marshy places, usually on or near the banks of rivers ; at roots of grass, in moss, &c. ; local ; Snodland (Kent), Weybridge, Walton-on-Thames, Chobham, Dagenham, Amberley, Sunbury ; Henley ; Hastings ; Glanvilles Wootton ; Winchester ; Portishead ; Swansea ; Oxfordshire ; Wicken Fen and fen districts generally ; York ; not recorded from the extreme north of England, or from Scotland or Ireland.

P. fuscipes, Curt. (*longipennis*, Er.). Considerably smaller, and of a generally more delicate appearance than the preceding, with the thorax more parallel-sided, less narrowed behind, and taken as a whole evidently narrower in proportion to the elytra ; the scutellum is usually darker ; the elytra are distinctly longer in proportion to the thorax, and are a little more thickly punctured ; the tibiæ are a little darker at their base, and in fact are seldom entirely testaceous, and occasionally quite dark, at all events the intermediate and posterior pairs. L. 6 mm.

Marshy places, at roots of grass and plants, in moss, flood refuse, &c. ; local, but sometimes abundant where it occurs ; Snodland (Kent), in profusion (J. J. Walker) ; Hastings ; Eastbourne ; Isle of Wight, Luccombe Chine, &c. ; New Forest ; Slapton Ley, Devon ; Falmouth ; St. Mary, Scilly Islands ; Bala, North Wales (by beating) ; in profusion on and about an old wall between Dolgellp and Barmouth (J. T. Harris) ; Scotland, very local, Solway district, "taken in abundance by W. Lennox at Caerlaverock" (Sharp, Scot. Nat. iii., p. 35) ; Ireland, Murrough of Wicklow.

P. caligatus, Er. This species may be easily distinguished from the preceding by its entirely black tibiæ ; apart from this it may be known from the two preceding species, which it resembles in general form, by its rather shorter elytra, which are more strongly and less closely punctured ; the thorax is less narrow and less parallel than in *P. fuscipes*, and the penultimate joints of the antennæ are a little shorter ; from *P. littoralis* it may be at once known by its dark tibiæ, testaceous mandibles, and the different shape of the thorax, as well as by its smaller size and shorter and less robust form. L. 6 mm.

Marshy places, at roots of grass, and especially in sphagnum ; very local, but sometimes common where it occurs ; Esher ; Wimbledon ; New Forest (taken in rather scanty numbers in sphagnum near Lyndhurst on May 1st, 1886, by Dr. Sharp, Mr. Gorham, and myself).

In Stephens' Illustrations, vol. v., p. 281, two species are mentioned, viz. *Pæderus ruficollis*, F., and *Pæderus sanguinicollis*, Steph., which are remarkable for having the hind body entirely black or bluish black ; these two species form the sub-genus *Pæderidus* of Rey, which is separated by that author from *Pæderus* on the ground that the base of the hind body beneath is raised in a slight and blunt keel, and that the mesosternal process is not keeled, whereas in *Pæderus* the keel at base of hind body is conspicuous and sharp, and the mesosternal process is always more or less keeled ; *P. ruficollis* is mentioned by Stephens as having been taken near Barmouth and Swansea, and on other parts of the Welsh coast, and as having been found in plenty at the first-mentioned place, and *P. sanguinicollis* is first described by him on specimens from Devonshire, and is mentioned as occurring in Glamorganshire ; they are given as distinct species in Waterhouse's catalogue, but have long been omitted from our lists, and I know nothing of their history as British. *P. ruficollis* (with which *P. longicornis*, Aubé = *sanguinicollis*, Steph., is united by Rey and other authors) appears to be a common species in France.*

* The name of the family PÆDERINÆ has by an oversight been omitted on page 6, line 24, a*. Posterior coxæ conical.

EVÆSTHETINÆ.

This group is usually classed with the *Steninae*, but is very distinct by reason of the posterior coxæ being contiguous, and the different mode of the insertion of the antennæ, as well as by the structure of the trophi; in some points it is allied with the broader forms of *Sunius*, and in others it bears a relation to *Trogophlæus*; if placed anywhere it must come under the *Pæderinæ*, but from this group it is distinguished by the totally different structure of the front coxæ, and by having the antennæ inserted inside the base of the mandibles and terminated by an evident club, whereas in the *Pæderinæ* the antennæ are inserted outside the base of the mandibles and are not clubbed; in the latter group, moreover, the tarsi are always five-jointed, whereas in the *Evæsthetinæ* they are composed of either three or four joints; the latter character alone is not perhaps sufficient to warrant their separation, but it may be taken into consideration to a certain extent; the group contains five European genera, *Leptotyphlus*, *Mayetia*, *Octavius*, *Edaphus*, and *Evæsthetus*, of which the last only occurs in Britain.

EVÆSTHETUS, Gravenhorst.

This genus comprises about six or seven species, which are found in Europe, Central Asia, and North America; one has lately been described from Japan; they are very small and rather robust insects, and very inconspicuous, and so closely resemble one another that several of the described species have been sunk as synonymous with others; they live under stones and in moss in damp places, and often occur in numbers in vegetable refuse at the sides of ponds, &c.; they are very slow in their movements; we possess all the European species, if we go by the catalogue of Heyden, Reitter, and Weise, in which *E. bipunctatus* and one or two others are sunk as synonyms; the species of the genus have all the tarsi four-jointed.

- I. Head, thorax, and elytra rugosely punctured, dull;
sutural stria not or scarcely marked *E. SCABER*, Grav.
- II. Thorax and elytra not rugosely punctured, rather
shining; sutural stria plainly marked.
 - i. Elytra evidently more finely punctured than thorax;
thorax more closely punctured, with basal furrows
longer and deeper *E. RUFICAPILLUS*, Lac.
 - ii. Elytra scarcely more finely punctured than thorax;
thorax less closely punctured, with basal furrows
shorter and shallower *E. LÆVIUSCULUS*, Mannh.

E. scaber, Thoms. Oblong, parallel-sided, broad in proportion to its length, reddish-black, with the head usually lighter, dull, hind body rather more shining; head transverse, somewhat triangular, as broad as thorax, together with thorax and elytra rather strongly, thickly, and rugosely punctured; antennæ hardly longer than the head, with a three-jointed club, red, with the club darker; thorax rather transverse, and somewhat cordiform, broad in front, and strongly narrowed behind, with two

strong straight, subparallel, longitudinal furrows on the posterior part of the disc; elytra transverse, a little shorter than thorax, slightly widened behind, with the sutural stria scarcely marked; hind body rather short and thick, almost as broad as the base of elytra, very finely and thickly punctured, less finely at the base of the front segments, which are impressed; legs entirely red. L. $1\frac{2}{3}$ –2 mm.

Male with the seventh ventral segment of hind body rather sharply and deeply, sixth less sharply but distinctly, emarginate, fifth furnished in centre of apex with two small projecting tubercles.

Marshy places, at roots of grass, in flood refuse, haystack refuse, &c.; local, but common sometimes where it occurs; Chatham, Lee, Sheerness, Wimbledon, Weybridge, Caterham, Reigate, Shirley, Rainham, Red Hill, &c.; Hastings; Devonshire; Holm Bush, Brighton (taken by Dr. Power with *Lebia crux-minor*, &c.); Wicken Fen; Sutton Park, Birmingham; Scotland, Lowlands, rare, Forth and Solway districts.

E. ruficapillus, Lac. Smaller and slightly narrower than the preceding, and apparently, as a rule, of a somewhat more reddish colour; it is easily distinguished by the fact that the punctuation of the thorax and elytra is not rugose, that of the latter being much finer and a little less close than that of the former; the thoracic furrows are broader and deeper and a little less parallel, and the sutural stria of the elytra, although fine, is well marked; sometimes the thorax, and occasionally the whole upper surface is entirely light red or reddish; in the male the seventh ventral segment of hind body is deeply emarginate, the sixth is channelled on its central line, and the fifth is furnished with two tubercles as in the preceding species. L. $1\frac{1}{2}$ – $1\frac{3}{4}$ mm.

Marshy places, at roots of grass, &c.; locally abundant; Lee, Strood, Snodland, Barnes, Weybridge, Wimbledon, &c.; Coleshill, near Birmingham, in great abundance in vegetable refuse on the side of a pond; Sutton Park; Needwood Forest; York; Scotland, Lowlands, very local, Solway district.

E. læviusculus, Mannh. (*ruficapillus*, Thoms., *nec* Lac.). Rather shorter, broader, and slightly thicker than the two preceding; the head is more shining and less rugose than in *E. ruficapillus*; the thorax is a little less widened in front and has the longitudinal furrows evidently shorter, narrower, and less deep; the elytra are less finely punctured, the punctuation being almost as strong as that of the thorax; the antennæ are also longer and the club is more slender, but this character is not very evident; in the male the tubercles on the fifth ventral segment of the hind body appear to be wanting. L. $1\frac{1}{2}$ mm.

Marshy places, at roots of grass, &c.; local, but not uncommon where it occurs; probably often confounded with the preceding species. Wimbledon, Barnes, Merton; Coleshill, near Birmingham; Isle of Man (Hugh Stowell); Scotland, Lowlands, local, Solway, Tweed, and Tay districts.

All these three species are probably widely distributed, and are most likely very often overlooked owing to their small inconspicuous appearance and sluggish movements; the two last species are very often confounded, and some of the localities given for the one may possibly apply to the other.

STENINÆ.

The members of this sub-family are very distinct by reason of their large prominent eyes, which give the head a sort of hammer-shaped form, and the long slender antennæ, which are eleven-jointed, and are terminated by a more or less distinctly formed club, and have their insertion quite exposed; all the coxæ are small, and the posterior pair are widely separated by a bilobed process of the metasternum; two British genera are contained in the sub-family, *Dianous* and *Stenus*; the genus *Evæsthetus* which has sometimes been included in it is now more correctly referred to a separate sub-family; there are about a dozen genera altogether in the group; the curious genus *Megalops* is now placed by Dr. Sharp near the *Evæsthetinæ*.

Our two genera may be distinguished as follows:—

- I. Eyes separated from neck by a distinct interval; hind body terminated by two setiform styles DIANOUS, *Curtis*.
- II. Eyes not separated from neck by a distinct interval; hind body terminated by two very short, almost imperceptible, styles . . . STENUS, *Latr*.

DIANOUS, *Curtis*.

Only two species of this genus are known; one is found in Central and Northern Europe, and occurs also near Lake Superior, and the other is distributed over a considerable portion of North America; the species are subaquatic in their habits.

D. coerulescens, Gyll. Of a deep blue-black colour, which is very bright in life, with a round yellow spot on each elytron; upper surface shining, with short and not very evident greyish pubescence; head rather finely and thickly punctured, antennæ about as long as head and thorax together, black, with apex sometimes lighter, last three joints forming a very indistinct club; thorax somewhat cylindrical, more strongly punctured than head; elytra longer than thorax, depressed near suture, rather thickly and somewhat strongly punctured; hind body narrower than elytra, finely and thickly punctured, with segments 2–4 strongly, and 5 feebly impressed longitudinally at base; legs black, very slightly bluish, tarsi with fourth joint bilobed. L. 5–5½ mm.

Male with the seventh ventral segment of hind body emarginate at apex, leaving the segment of the armature partially exposed.

In moss in or by the side of swiftly running streams, especially in waterfalls; often found in company with *Stenus Guynemeri* and *Quedius auricomus*; local, but not uncommon; Hastings; Isle of Wight (abundant in a waterfall on the beach near Ventnor); Devonshire, Ilfracombe, Barnstaple, and other localities; Llangollen, Barmouth, and other Welsh localities, especially in mountainous districts; Cheshire; Bewdley Forest; Dove Dale; Yorkshire; Northumberland, rare, Ouseburn Dene, Wallington, Wooler; Scotland, widely distributed, Solway, Tweed, Forth, Tay, Dee, and Clyde districts; it probably occurs in Ireland, but I can find no record.

STENUS, Latreille.

This genus comprises upwards of three hundred and fifty species ; of these about one hundred and thirty are found in Europe ; the rest are widely distributed over the surface of the globe ; a considerable number occur in North America, and a certain number are found in Central Asia, Ceylon, Japan, Brazil and Chili, Tahiti, the Australian region, Eastern Africa and Madagascar, &c. ; as a rule they prefer wet situations, but some are found in dry sandy or chalky districts ; they fall naturally under two great sections, viz. those that have the penultimate joint of the tarsi simple, and those in which it is bilobed ; the species belonging to the latter section are chiefly attached to plants, to which the tarsal lobes apparently enable them to cling ; in all the *Steni* the ligula, paraglossæ, and labial palpi are very slightly jointed with the mentum, and at death are sometimes protruded at the end of the long gullet, forming a kind of proboscis ; this is not the case with *Dianous*, in which the ligula is said not to be productile, whereas in *Stenus* it is, though wrongly, said to be productile. There are about sixty British species of *Stenus*, which may for convenience sake be divided into several sections or divisions, depending on the formation of the tarsi, the presence or absence of margins on the hind body, the presence or absence of an orange spot on the elytra, and the relative length of the posterior tarsi ; there are three or four species which have the formation of the penultimate joint of the tarsi intermediate between that of the species forming the two great groups ; after some consideration I have placed these in a separate section.

- I. Penultimate joint of tarsi simple, not, or scarcely, broader than third joint ; third joint always simple.
 - i. Hind body plainly margined at sides throughout.
 - 1. Elytra with a round orange or yellow spot on each. (Section I., p. 327.)
 - 2. Elytra black, unicolorous. (Section II., p. 330.)
 - ii. Hind body not margined at sides (except sometimes the first one or two basal segments). (Section III., p. 342.)
- II. Penultimate joint of tarsi semi-bilobed, not much broader than third joint. (Section IV., p. 344.)
- III. Penultimate joint of tarsi very strongly bilobed, evidently broader than third joint.
 - i. Hind body plainly margined at sides ; elytra black, unicolorous. (Section V., p. 346.)
 - ii. Hind body not margined at sides (except sometimes at extreme base).
 - 1. Elytra with a round orange spot on each. (Section VI., p. 356.)
 - 2. Elytra black, unicolorous. (Section VII., p. 356.)

(SECTION I.)

The species belonging to this section are at once distinguished by the simple penultimate joint of tarsi, the orange spots on the elytra, and the long posterior tarsi which are not much shorter than the tibiæ ; they are found on the margins of ponds and streams, or in damp marshy places.

The larva of *Stenus bipunctatus* is described and beautifully figured by Schiödte (Part vii., p. 548, pl. xviii.): it is elongate and fusiform, and bears a sort of resemblance to the perfect insect; the colour is white with the head and dorsal scuta fuscous, and the mouth-organs, ventral scuta, antennæ and cerci yellowish; head narrower than prothorax, suborbicular, narrowed behind ocelli; antennæ and maxillary palpi very long and slender; mandibles slender, hooked, and furnished with teeth; prothorax longer than broad, meso- and meta-thorax together considerably longer than prothorax, all three segments very uneven and much impressed; abdomen long with the second segment broadest, and the rest gradually narrowed to apex, contracted in front and behind so that the intersections are well marked, with strong outstanding setæ; last segment furnished with two long and rather stout cerci, of which the second joint is narrower and shorter than the first,* and an anal appendage, which is much dilated at apex and terminates in four wart-like prominences; legs very long and slender, the first pair considerably shorter than the others, claws rather long and sharp.

I. Legs quite black.

- i. Spots on elytra small; first joint of palpi and base of second testaceous *S. BIGUTTATUS*, *L.*
- ii. Spots on elytra larger; first joint of palpi only testaceous *S. BIPUNCTATUS*, *Er.*

II. Legs variegated, partly testaceous.

- i. Hind body without a longitudinal keel at base of front segments; size smaller, more slender *S. GUTTULA*, *Müll.*
- ii. Hind body with a longitudinal keel at base of front segments; size larger, more robust *S. BIMACULATUS*, *Gyll.*

***S. biguttatus*, L.** Black, with a slight metallic tinge, clothed with short silvery pubescence; form rather slender; head rather finely and thickly punctured, hollowed in front, with a fine longitudinal elevated keel; antennæ pitchy brown with the first joint and the club darker; thorax oblong, much narrower than elytra, with sides narrowed in front and behind, somewhat cylindrical, rather strongly and thickly, and somewhat rugosely, punctured, with a somewhat indistinct dorsal furrow; elytra rather longer than thorax, moderately strongly, thickly, and rugosely punctured, each with a rather small orange spot a little below middle; hind body with the basal segments strongly impressed longitudinally at base, finely and thickly punctured; legs black, rather shining, with the trochanters pitchy-red, and apex of tarsi brownish. L. $4\frac{1}{2}$ – $4\frac{2}{3}$ mm.

Male with the seventh ventral segment of hind body deeply emarginate, sixth broadly sinuate with a smooth transverse impression before sinuation, fifth with a slight smooth impression at apex.

Margins of ponds, streams, and rivers; not uncommon; Darent Wood, Lewisham, Mickleham (banks of Mole), Croydon, Woking, Hendon, Reigate, Charlton, &c.; Cambridge; Hastings; Devonshire; Dean Forest; Bewdley; Tewkesbury; banks of Dove, near Burton-on-Trent; Yorkshire; Preston, Lancashire; Manchester; Liverpool; Northumberland, Durham, and Cumberland; "South of Scotland," Murray.

* The cerci of the Staphylinidæ usually terminate in a more or less long seta, which by some authors is merely regarded as a seta, by others as a setiform third joint of the cerci; this point must be noticed, or else confusion may arise.

S. bipunctatus, Er. Very like the preceding, but rather larger, and a little more robust, with the first joint only of the palpi testaceous; the head is a little narrower and less hollowed in front, and the antennæ are rather shorter and darker; the elytral spot is rather larger and lighter, and situated a little further from the suture; the legs are rather shorter, and the trochanters are more darkly coloured; the male has no impression at the apex of the fifth ventral segment of hind body. L. 5 mm.

Margins of ponds, rivers, &c.; local; Darent Wood, Lee, Sevenoaks, Ashstead, Mickleham, Reigate, Hendon, Charlton; Hastings; Glanvilles Wootton; banks of Dove; Bewdley; Tewkesbury; Wicken Fen; Lincoln; Manchester; not recorded from the northern counties of England, or from Scotland; Ireland, near Belfast.

S. guttula, Müll. (*geminus*, Heer). Narrow and slender, smaller than either of the preceding, black, with a large yellow spot on each elytron; pubescence short and silvery; head much broader than thorax rather strongly and thickly punctured, antennæ pitchy with the first joint and club darker, palpi testaceous, with the second joint often darker; thorax somewhat cylindrical, strongly, very thickly, and rugosely punctured; elytra slightly longer and much broader than thorax, very thickly and rugosely punctured, yellow spot nearer sides than suture; hind body rather narrow, finely and thickly punctured; basal segments strongly impressed transversely; legs testaceous, with the apex of femora broadly dark, and the tibiæ and tarsi more or less ferruginous. L. 4 mm.

Male with the seventh ventral segment of hind body feebly, and the sixth more strongly, sinuate, the latter with a smooth impression before sinuation.

Damp margins of streams, ponds, &c., and in wet places generally; local; London district, not common, Tottenham, Highgate, Sheerness, Amberley, and Charlton; Cambridge; Herne Bay; Bungay, Suffolk; Hastings; Isle of Wight; Devonshire; Knowle; Bewdley; Tewkesbury; banks of Dove, Burton-on-Trent; Bridlington, Yorkshire; Isle of Man; Manchester, Preston, and Liverpool; Northumberland, Durham, and Cumberland; Scotland, common, Solway, Tweed, Forth, Tay, and Dee districts; Ireland, banks of Dodder and Loughlinstown.

S. bimaculatus, Gyll. Black, rather dull, larger and more robust than either of the preceding, clothed with short ashy pubescence, front parts rather strongly, thickly, and rugosely punctured; head with two impressed longitudinal grooves with a raised space between them; antennæ pitchy, palpi yellow; with apical joint fuscous, except at base; thorax longer than broad, more narrowed behind than in front, with sides rounded; elytra about as long as thorax, with the yellow spot rather small in proportion and situated at about an equal distance from the sides and suture; hind body with the centre of base of front segments furnished with a distinct longitudinal keel, rather finely and thickly punctured, more feebly towards apex; legs testaceous, with the coxæ black, apex of femora and the entire tarsi pitchy, tibiæ often darker. L. $5\frac{1}{2}$ mm.

Male with the seventh segment deeply emarginate, with an oblong tubercle near the middle of its base; sixth widely emarginate with the middle surface depressed and smooth and enclosed by two parallel ridges which are more elevated towards posterior margin, and terminate on each side in a prominent tooth; the depressed space has a tubercle in the centre; fifth segment slightly sinuate with a smooth space furnished with a tubercle before sinuation; fourth segment with a trace of a smooth space and a small tubercle.

Marshy places; at roots of grass, in moss, flood refuse, &c.; common and widely distributed in the Midlands and Southern districts; rarer in the north; Scotland rare, Solway and Tweed districts; Ireland, near Dublin.

(SECTION II.)

This section contains a considerable number of species, which are distinguished by the simple penultimate joint of the tarsi, the absence of spots on the elytra, and by the fact that the hind body is margined; the colour of the legs is an important character, but in one or two species (e.g. *S. proditor*) is somewhat misleading.

- I. Posterior tarsi elongate, as long as, or not much shorter than, tibiæ, with first joint almost always evidently longer than the last.
 - i. Legs entirely black.
 1. Base of segments 2-5 of hind body without longitudinal keel; first joint of posterior tarsi shorter in proportion to last *S. ASPHALTINUS, F.*
 2. Base of segments 2-5 of hind body with a short longitudinal keel in centre; first joint of posterior tarsi longer in proportion to last.
 - A. Head almost as broad as elytra.
 - a. Form broader, more robust; male without raised prominence on posterior third of hind tibiæ *S. JUNO, F.*
 - b. Form narrower; male with a raised prominence on posterior third of hind tibiæ *S. ATER, Mann.*
 - B. Head plainly narrower than elytra, scarcely broader than thorax *S. LONGITARSIS, Thoms.*
 - ii. Legs more or less light in colour, never entirely black.
 1. Thorax and elytra very coarsely and rugosely punctured, with upper surface very uneven *S. GUYNEMERI, Duv.*
 2. Thorax and elytra much less coarsely and more regularly punctured, with upper surface not or only slightly uneven.
 - A. Tibiæ dark brown; size smaller *S. PRODITOR, Er*
 - B. Tibiæ more or less reddish or testaceous; size larger.
 - a. Elytra as thickly punctured as thorax, which is narrower in proportion.
 - a*. Punctures of elytra distinct, not confluent; femora narrowly dark at apex *S. SPECULATOR, Lac.*
 - b*. Punctures of elytra confluent; femora broadly dark at apex *S. PROVIDUS, Er.*
(*v. Rogeri, Kr.*).

- b. Elytra not as thickly punctured as thorax, which is broader in proportion S. LUSTRATOR, *Er.*
- II. Posterior tarsi short, hardly longer than half the tibiæ, first joint about equal to last.
- i. Legs entirely black.
1. Segments 2-5 of hind body each furnished with four little raised longitudinal keels at base.
- A. Elytra uneven, with evident depressions.
- a. Head almost as broad as elytra.
- a*. Thorax and elytra strongly and rather thickly punctured; elytra as long as thorax S. BUPHTHALMUS, *Grav.*
- b*. Thorax and elytra coarsely and not thickly punctured; elytra a little longer than thorax S. MELANOPUS, *Marsh.*
- b. Head evidently narrower than elytra.
- a*. Head hardly broader than thorax S. INCRASSATUS, *Er.*
- b*. Head evidently broader than thorax.
- a†. Interval between the frontal furrows broad, not raised in a keel; thorax without trace of central furrow S. MELANARIUS, *Steph.* (*cinerascens*, *Er.*).
- b†. Interval between the frontal furrows raised, more or less keeled; thorax with obsolete central furrow S. ATRATULUS, *Er.*
- B. Elytra even or almost even, without, or with very obsolete, depressions, except at suture.
- a. Thorax channelled for the greater part of its length.
- a*. Upper surface rather dull, less strongly punctured S. CANALICULATUS, *Gyll.*
- b*. Upper surface shiny, more strongly punctured S. NITENS, *Steph.* (*æmulus*, *Er.*).
- b. Thorax without central channel S. MORIO, *Grav.*
2. Front segments of hind body with one small longitudinal keel situated in centre of base.
- A. Elytra very uneven, much longer than thorax S. PUSILLUS, *Steph.*
- B. Elytra much less uneven, scarcely longer than thorax S. EXIGUUS, *Er.*
3. Base of front segments of hind body simple; elytra a little longer than thorax; upper surface rather thickly pubescent S. INCANUS, *Er.*
- ii. Legs more or less light, never black.
1. Hind body with very feeble margins; legs dark ferruginous, or brownish, with knees darker S. FUSCIPES, *Grav.*
2. Hind body with rather strong margins.
- A. Legs light, testaceous; base of front segments of hind body with one small central longitudinal keel S. CIRCULARIS, *Grav.*
- B. Legs darker, more or less pitchy.
- a. Base of front segments of hind body with four small keels; front parts more coarsely punctured; thorax longer with sides less rounded S. VAFELLUS, *Er.*

- b. Base of segments of hind body without keel; front parts more closely punctured; thorax shorter, with sides more rounded . . . *S. DECLARATUS*, *Er.*

S. asphaltinus, *Er.* Shining black, front parts very coarsely punctured; antennæ brownish with first two joints black, basal joint of maxillary palpi and sometimes base of second joint testaceous; thorax longer than broad with sides rounded a little before middle, with a short longitudinal furrow in middle of disc; elytra scarcely longer than thorax; hind body elongate, very shining, rather strongly and sparingly punctured; legs black. This species is smaller and less robust than *S. Juno*, and in size and build resembles *S. ater*; it is, however, more coarsely punctured, and has the elytra proportionally shorter than either of these two species. L. $4\frac{2}{3}$ mm.

Male with the seventh ventral segment of hind body emarginate at apex, sixth depressed and slightly sinuate.

Sand and chalk pits; not found, apparently, in damp or marshy localities; rare; Charlton, Strood, Erith, Reigate, Caterham, Chatham, Shirley, West Wickham, Tonbridge. Mr. Chappell records it from decayed *Sparganium* at Bowdon, near Manchester, and Withington, Cheshire; it is found under stones, dead leaves, &c.

S. Juno, *F. (loops, Grav.)*. Black, not very shining; head large with eyes very large and prominent, antennæ black, maxillary palpi testaceous, with the second joint pitchy at apex, and the third dark, lighter at base; thorax rather strongly and closely punctured with a short, obsolete, dorsal channel; elytra longer than thorax and more strongly, thickly, and rugosely punctured, with two or three depressions; hind body rather finely and thickly punctured, with a distinct short longitudinal keel at base of each of the front segments; legs black, hinder femora in male very broad and slightly curved, tibiæ also slightly curved and terminating in a short spur. L. $5-5\frac{1}{2}$ mm.

Besides the differences in the legs, the male has the metasternum deeply impressed and covered with pale pubescence which takes the form of a thick tuft between the middle coxæ; the seventh ventral segment of hind body is deeply and somewhat angularly excised at apex, the part behind excision being smooth and shining; the sixth segment is rather deeply sinuate with a smooth depression, flanked on each side by a ridge, with a tubercle at base, and the remaining segments exhibit a smooth depression (most evident in fifth), each furnished with a fine longitudinal keel in centre.

Marshy places, at roots of grass, &c.; common and generally distributed throughout the kingdom.

S. ater, *Mann.* Smaller and less robust than the preceding, with the legs and tarsi more slender; antennæ black, maxillary palpi black, with the first joint and lower third of second testaceous; front parts strongly, thickly, and rugosely punctured; thorax more cylindrical than

in the preceding species, with dorsal channel plainer; elytra with less evident depressions; hind body rather finely and thickly punctured, with a longitudinal keel at base of front segments; legs black, hind tibiæ in male furnished with a very distinct tooth-like elevation on their inner side about a third from apex, a character which will at once distinguish the species. L. $4\frac{2}{3}$ –5 mm.

Seventh ventral segment of hind body in male smooth in middle, deeply emarginate at apex, with two tubercles at base; sixth segment emarginate in middle of apical border, broadly hollowed out in a smooth depression, enclosed between two elevated ridges (clothed with long yellow hairs) which terminate behind in a tooth; the other segments exhibit somewhat the same structure but are not toothed, and not, or scarcely perceptibly, sinuate.

In moss, haystack refuse, &c., in dry places; local; London district, generally distributed, and not uncommon; Hastings; Deal; Brighton; Barmouth; Manchester district; it is chiefly confined to chalky districts in the south and south-east of England.

S. longitarsis, Thoms. Smaller than the preceding with the head narrower and more deeply excavated; palpi with the first joint, and only the extreme base of second, light; thorax shorter; elytra longer, broader in proportion, more convex, and more uneven; in the male the hinder tibiæ have no elevation on their inner side, and the seventh segment is sparingly punctured before the emargination, and has two very obsolete tubercles, which are sometimes absent; the characters of the remaining segments somewhat resemble those of *S. ater*, but are much less pronounced. L. $4-4\frac{1}{2}$ mm.

Marshy places, at roots of grass, &c.; first taken by Mr. Rye at Wimbledon, and it has also occurred at Esher: these are apparently the only localities known for the insect.

S. Guynemeri, Duv. (*rugosus*, Kies.). Deep shining black, sculpture of front parts extremely rugose and uneven and in parts warty; head with a shining central keel and two more or less interrupted keels between this and eyes; antennæ pitchy with darker club, maxillary palpi pitchy black, with first joint and base of second more or less broadly testaceous; thorax widest before middle and rather strongly contracted behind, with a broad dorsal channel and several more or less marked depressions; elytra as long as thorax; hind body with broad margins, rather coarsely punctured at base and sides of the segments, smoother on disc; legs testaceous with the apex of femora broadly, and the apex and base of tibiæ narrowly, dark, tarsi pitchy, coxæ black. L. 5 mm.

Male with the sixth and seventh segments of hind body feebly emarginate.

Under stones and in moss in or by the side of swiftly running streams, especially in waterfalls (often in company with *Dianous* and *Quedius auricomus*); local, and chiefly found in hilly and mountainous districts. Hastings district; North Devon,

Ilfracombe, &c.; Somerset; Barmouth; Matlock; Buxton; Scarborough; Cheshire; not recorded from the extreme northern counties of England, but it probably occurs, as it is found in Scotland in the Solway, Tweed, Forth, and Clyde districts; Ireland, near Killarney.

S. proditor, Er. (*ripæcola*, Sahlb.). A narrow, parallel-sided, and somewhat cylindrical species; black, moderately shining; antennæ pitchy, basal joint, and base of second joint of palpi, testaceous; head large with very prominent eyes, strongly furrowed; thorax oblong, almost as broad as elytra, and of about the same length; thorax and elytra thickly and moderately, but not coarsely, punctured; hind body rather finely and thickly punctured, front segments with a small longitudinal keel at base; legs dark pitchy-black, or pitchy-red; base of femora lighter; this species most resembles *S. argus*, but is darker, less pubescent, with much shorter elytra, and more distinctly margined hind body; from *S. nitens* it may be distinguished by its duller appearance, shorter elytra, and the absence of a dorsal channel on thorax. L. $3\frac{1}{3}$ mm.

Male with the seventh ventral segment of hind body excised angularly at apex, sixth deeply sinuate with a smooth depression behind sinuation, terminated on each side by a slight keel.

Rare; first taken at Finchley by Mr. E. W. Janson; it is chiefly a fen species, and has been found at Wicken, Horning, and Ranworth Fens, by Mr. Crotch, Dr. Sharp, Mr. Matthews, Dr. Power, and others.

This species has the legs so dark that it hardly seems to belong to the group in which it is placed; at the same time it can hardly be classed with the species in which the legs are quite black.

S. speculator, Er. (*clavicornis*, Scop., *boops*, Gyll.). Dull black, winged; head rather strongly furrowed, antennæ pitchy red with the club dark, and the first two joints black, palpi testaceous; thorax oblong with sides moderately rounded, broadest in middle, rather strongly and very thickly punctured, with obsolete central channel; elytra as long as thorax, strongly and closely punctured; hind body rather shining, closely and much more finely punctured than elytra; legs testaceous, knees and sometimes extreme base of femora narrowly darker, coxæ black, trochanters pitchy; between the middle coxæ in male there is a thick tuft of grey hairs. L. 5 mm.

Male with the seventh ventral segment of hind body deeply emarginate, sixth slightly emarginate with a broad, depressed, punctured space behind, which is bounded on each side by a rather prominent keel, the two keels being prolonged at apex into a blunt tooth and ciliate.

Marshy and damp places, at roots of grass, in moss, haystack refuse, &c.; common and generally distributed throughout the kingdom.

S. providus, v. *Rogeri*, Kr. Very closely allied to the preceding, but it is more shining, and more coarsely punctured, with the punctures much more rugose and confluent; the wings are rudimentary; the head

is more deeply hollowed, the antennæ are pitchy black, and the palpi are, as a rule, darker at apex; the thorax is broadest before middle and not in the middle; the elytra are shorter, straighter at the sides, and more shining, and the hind body also is more shining; the apex of femora is much more broadly darker, and the coxæ and trochanters are lighter; the tuft of hair between the middle coxæ of male is not nearly so distinct; the male characters of the seventh and sixth ventral segments of hind body do not present any striking difference, but the whole of the remaining segments show a more or less distinct longitudinal impression with a small polished space on its hinder margin, and on each side are furnished with a thin ridge of yellow hairs, forming two lines or curls turned inwards. L. 5 mm.

Marshy places, at roots of grass, in moss, &c.; not so common perhaps as the preceding, but generally distributed throughout the kingdom.

Apparently we do not possess the type form as British; it appears to be duller than the variety, and to have longer elytra; the variety, however, does not appear to be a distinct species, as some authors would consider it.

S. lustrator, Er. This species is closely allied to *S. speculator*, but is rather smaller, and may be distinguished by the colour of the palpi which are pitchy with the first joint and base of the second testaceous; the legs are more slender, and more suffused with pitchy in most specimens; the punctuation is not quite so close and the punctures therefore are rather more distinctly separated, and the elytra are evidently a little longer and slightly broader in proportion; in the male the seventh ventral segment of hind body has a slight angular emargination; the sixth segment is broadly and deeply emarginate, and is smooth in the centre, and furnished on each side of the smooth space with a rather sharp keel; there is also a slight central tubercle; the other segments are slightly depressed in middle and furnished with rows of long pubescence taking the form of curls as in *S. providus*, v. *Rogeri*; from the latter species *S. lustrator* is easily separated by its darker palpi and different punctuation. L. $4\frac{1}{2}$ – $4\frac{3}{4}$ mm.

Marshy places; in moss, especially sphagnum, at roots of grass, heather, &c.; rare; Esher, Wimbledon, Shirley, Woking, Richmond Park, Croydon, Caterham; formerly taken in Hammersmith Marshes; Parkhurst Forest, Isle of Wight; New Forest; North Devon; Wicken Fen; Scotland, very rare, Solway district: Mr. Rye remarks (Ent. Mo. Mag. i. 62) that he has a male from Wicken Fen in which the ciliation of the under side is entirely absent.

The following species of this section are distinguished by the short posterior tarsi, which are scarcely longer than half the tibiæ; they are, as a rule, considerably smaller than the preceding species.

S. bupthalmus, Grav. (*sulcatulus*, Rey, *foveiventris*, Fairm. ?). Black, rather dull, hind body more shining; antennæ rather short, black,

maxillary palpi black with first joint testaceous; head wider than thorax with two shallow grooves; thorax oblong, narrower than elytra with sides rounded slightly before middle and somewhat contracted behind, strongly, thickly, and somewhat rugosely punctured, with an obsolete central channel and a feeble depression on each side behind middle; elytra short, very little, if at all, longer than thorax, strongly, deeply, and rugosely punctured, somewhat uneven; hind body rather finely and thickly punctured, front segments with four small longitudinal keels at base of each; legs black, tarsi short, with penultimate joint a little thickened and cordiform. L. $3\frac{1}{3}$ –4 mm.

Male with the seventh ventral segment of hind body broadly, slightly, and somewhat angularly emarginate at apex.

Damp places; at roots of grass, in moss, &c.; generally distributed and common throughout the kingdom.

This species varies considerably in size and to some extent in general appearance, but may be distinguished by its rather robust build and stout legs, and also by its dull appearance, and the obscure depressions at sides and near base of thorax, which are, as Mr. Rye observes (l.c. p. 38), best seen by using a glass of low power; it is one of the commonest of the *Steni*, and therefore its variations cause more mistakes than would be the case if it were less common.

S. melanopus, Marsh (*nitidus*, Lac., *capitatus*, Epp.). Deep black, very shining; head with two deep furrows between eyes meeting in front, the space between rather strongly and sharply raised; antennæ rather short, black, maxillary palpi black with first joint testaceous; thorax scarcely longer than broad with sides strongly dilated and rounded in front and narrowed behind, strongly but not closely punctured, with a distinct central furrow, which is, however, usually very short and does not extend much beyond middle towards apex, and is evanescent before base; elytra a little longer than thorax, impressed at suture, and between suture and shoulders, strongly and not closely or rugosely punctured; legs black. L. 3 mm.

Male with the seventh ventral segment of hind body slightly emarginate at apex.

Damp places, especially wet muddy banks; also in haystack refuse, &c.; I once found it plentifully on a damp place on the shore at Bridlington, Yorkshire, in company with *Bledius arenarius* and *Dyschirius thoracicus*; it is common and generally distributed in the London district and the south of England, and also in the Midlands and the mid-northern counties; it becomes, however, rarer further north; "Northumberland district, rather uncommon" (Bold); Scotland, rare, Forth district only (Sharp); Rye records it as "common at Falkirk."

S. incrassatus, Er. This species is about the size of *S. bupthalmus*, but is broader, with the elytra evidently wider, and the head distinctly narrower, the latter being only about as broad as the middle of thorax; the hind body also is thicker; antennæ short, black, palpi black with

first joint reddish testaceous; thorax and elytra strongly, thickly, and somewhat rugosely punctured, the former with sides slightly rounded, the latter rather uneven, with a strong depression near scutellum; hind body finely and not thickly punctured with front segments keeled as in *S. bupthalmus*; legs black, tarsi short with the penultimate joint slightly cordiform. L. $3\frac{1}{3}$ – $3\frac{1}{2}$ mm.

Male with the seventh segment of hind body with a rather deep semi-circular emargination at apex, sixth segment depressed in middle and slightly sinuate.

Marshy places; at roots of grass, &c.; not common; Reigate, Barnes, Wandsworth, Wimbledon, Sheerness, Southend; formerly common in Hammersmith Marshes and at Notting Hill; Tonbridge; Maidstone; Wicken Fen; Bungay, Suffolk; Brighton; Boston; Knowle, near Birmingham; Repton; not recorded from the north of England or Scotland.

S. melanarius, Steph. (*cinerascens*, Er., *gracilentus*, Fairm., *nigripalpis*, Thoms.). Black, rather dull, somewhat parallel-sided, with the hind body rather convex and very slightly narrowed behind; head evidently broader than thorax with two broad feeble furrows, the interval between them being broad and not raised in a keel; antennæ rather short, black, palpi black with first joint pitchy testaceous; thorax and elytra strongly and thickly punctured, the punctuation of the latter being somewhat less close; thorax longer than broad with no trace of dorsal channel; elytra rather longer than thorax; hind body shining, finely and rather diffusely punctured; legs black. L. 3 mm.

Male with the seventh ventral segment of hind body feebly emarginate at apex, and the hind body a little more narrowed behind than in female.

This species closely resembles *S. morio*, but differs in several important particulars; from *S. canaliculatus* it may be at once separated by the absence of a dorsal channel on thorax; and from *bupthalmus* it may be distinguished by its narrower thorax, less strongly and rugosely punctured elytra, and by the finer and more remote punctuation of the hind body; it is, moreover, more slender and parallel-sided.

Marshy places; at roots of grass; rare; Wimbledon, Weybridge, Walton-on-Thames, Woking, Barnes, Chobham, Merton; Dagenham; Bishopstoke; Horning Fen; Soham, Cambridge; Snowdon; Colleshill, near Birmingham; Repton; Scotland, rare, Tay and Solway districts.

S. incanus, Er. This species is allied to the preceding, and also to *S. morio* and *S. atratulus*; it is, however, narrower than any of them and the colour is more leaden-grey, the insect being more distinctly clothed with whitish pubescence; the forehead has two broad deep furrows, the space between them being strongly convex and as high as the outer sides of the furrows; the thorax and elytra are thickly and rather finely punctured; the elytra are plainly longer than the thorax, and are furnished with one or two obscure depressions at base; the hind body is sparingly

and finely punctured, and has no trace of a keel at the base of the front segments; legs black. L. $2\frac{2}{3}$ mm.

Male with the head broader than in the female, and with the seventh ventral segment of hind body broadly emarginate in a short angle at apex.

Damp places; rare, although occurring in some numbers where found; Scotland, Solway district, banks of Nith, Thornhill, Dumfries; also taken in the Tay district; it appears to be rare in France, and only to occur in warm damp valleys on the edge of running streams.

(**S. *Shepherdi***, Crotch. A specimen of a *Stenus* found by Mr. Edwin Shepherd at Hammersmith Marshes, and returned as distinct by Dr. Kraatz, was named as above by Mr. Crotch (Proc. Ent. Soc., Nov. 19, 1866); it appears to be closely allied to *S. melanarius*, but is said to be larger and more shining, with the palpi black, except the basal joint, which is yellow; from *S. bupthalmus* it differs by its sparingly punctured hind body; the middle keels of the segments of the hind body appear to be strongly elevated (Ent. Ann., 1867, 49). Gemminger and Von Harold in their catalogue refer this insect to the female of *S. ruralis*, Er. (v. Muls. et Rey, Brévipennes, Stenides, 1884, p. 100), but it appears to differ in having the basal joint of the palpi yellow, although it agrees with it in its sparingly punctured hind body.*)

S. *morio*, Grav. (*trivialis*, Kr., *æqualis*, Rey). Of a somewhat leaden black colour, but moderately shining, clothed with a fine and short whitish pubescence; head evidently narrower than thorax, gently excavated and obsoletely furrowed between the eyes with the interval between the furrows scarcely raised; antennæ black, palpi black with first joint testaceous; thorax nearly cylindrical with no channel or depressions, longer than broad, thickly and deeply punctured; elytra evidently longer than thorax, disc without depressions, thickly and deeply punctured; hind body narrowed at apex (more so in male than female), shining, rather finely and closely punctured; legs black; distinguished from *S. melanarius* by its broader head, concave forehead, wider elytra, and more closely punctured hind body, and from *S. canaliculatus* by the absence of a dorsal channel on thorax. L. 3 mm.

Male with the seventh ventral segment of hind body broadly and angularly emarginate at apex, sixth broadly sinuate with a feeble punctured depression before sinuation.

In moss, &c., in damp places; rare; Highgate, two specimens in a watercourse (E. W. Janson); Rusper, near Horsham (Gorham); Tonbridge (Horner); Tewkesbury (Blatch); according to Mulsant and Rey it is rather a common species throughout France.

* Since I wrote the above, Mr. Mason has informed me that he has had the specimen alluded to figured, and that it is *S. ruralis*; the character, however, of the colour of the first joint of the palpi is a very important one, and it seems strange that Dr. Kraatz did not recognize the insect.

S. atratulus, Er. A small, black, rather shining species; head broader than thorax, more so in male than in female, with two broad rather feeble furrows on forehead separated by a narrow raised keel; antennæ short, black, palpi black with basal joint testaceous or rufopiceous; thorax somewhat dilated in middle where it is about as broad as long, with an obsolete dorsal channel, strongly and closely punctured; elytra wider and considerably longer than thorax, strongly and closely punctured, with an elevation between suture and shoulders; hind body evidently narrowed behind in male, thick and scarcely narrowed in female, rather coarsely punctured, with the four keels at the base of each of the front segments conspicuous; legs black.* L. $2\frac{1}{2}$ – $2\frac{2}{3}$ mm.

Male with the sixth and seventh ventral segments of hind body very feebly sinuate on apical margin.

Damp places, in moss, at roots of grass, &c.; rare; Battersea Park (Rye); Doniford, Somerset (Power); Lewes; Weymouth; Bristol; Coleshill and Knowle, near Birmingham (Blatch); Bewdley; Repton (Garneys); Shrewsbury; Southport (sandhills); Northumberland district, more plentiful on the coast than inland; not recorded from Scotland.

S. canaliculatus, Gyll. (*congener*, Maekl.). Rather dull black, front parts somewhat leaden, clothed with a fine, short and close, ashy pubescence; head broader than thorax, rather strongly and thickly punctured, almost even with traces only of the usual furrows; antennæ short, black, palpi black, with the first joint, and extreme base of second, testaceous; thorax longer than broad with sides slightly rounded, very thickly and rather strongly punctured, with a fine but very distinct central channel extending throughout its length; elytra a little longer than thorax, rather strongly and closely punctured, without depressions on disc; hind body rather finely and thickly punctured; legs black. L. $3\frac{1}{3}$ mm.

Male with the seventh ventral segment of hind body emarginate at apex, the sixth segment also showing traces of emargination.

Marshy places, banks of ponds, streams, and rivers; also at roots of grass, in moss, &c.; rather local, but not uncommon; London district, generally distributed; Glanvilles Wootton; Brighton; Devonshire; Bungay, Suffolk; Fen districts; Repton; Boston; Lincoln (banks of Witham); Manchester; Liverpool; Northumberland and Cumberland, rather rare; Scotland, scarce, Solway, Forth, and Clyde districts; Ireland, near Belfast.

S. nitens, Steph. (*æmulus*, Er.). Very like the preceding in general shape, and also resembling it in having a distinct dorsal central channel extending the whole length of the thorax; it is, however, at once distinguished by its rather narrower form and much more shining appearance, the colour being shining black and not dull; the head is considerably broader in proportion to the thorax, and the punctuation of the front parts is much coarser; the hind body is less deeply punctured, and very shining; the size is somewhat variable. L. $3\frac{1}{3}$ –4 mm.

* I have seen specimens in which the legs are pitchy or brownish.

Male with the seventh ventral segment of hind body slightly but widely emarginate, the sixth segment slightly sinuate and depressed.

Marshy places, especially in fen districts; very local; Norfolk and Cambridge Fens (Horning, Wicken, &c.); also recorded from Southend, Devonshire, and Liverpool, and as common near Dublin; it is possible, however, that some of these records may be erroneous; it has not occurred in Scotland.

S. pusillus, Er. A very small species, rather broad proportionally, somewhat depressed, black, front parts rather dull, hind body more shining; head rather broad, with two grooves meeting in a point in front, the space between elevated and rather shining; antennæ short and stout, black, palpi black with first joint testaceous; thorax about as long as broad, or even slightly transverse, with the sides strongly rounded, rather strongly and thickly punctured, with two evident lateral depressions behind the middle, united by an obsolete transverse depression near the base; elytra distinctly longer than thorax, rather depressed, strongly punctured, disc uneven; hind body short, rather suddenly narrowed at apex, shining, finely punctured, with one short longitudinal keel at base of the two or three front segments; legs black or nearly black. L. $2-2\frac{1}{2}$ mm.

Male with the seventh ventral segment of hind body slightly and somewhat angularly emarginate at apex.

Marshy places, at roots of grass, &c.; widely distributed and rather common throughout England; rarer further north; Scotland, not common, Solway, Tweed, Forth, Tay, and Dee districts; Ireland, near Waterford.

S. exiguus, Er. Very closely allied to the preceding, from which it may be distinguished by its somewhat narrower form, more glossy, less closely punctured, and less depressed thorax, which has the sides less rounded and the depressions near base less evident; the elytra are distinctly shorter, being scarcely longer than the thorax, and are rather strongly and not quite so closely punctured, and their disc is less uneven; Rey suggests that it may be a brachypterous form of the preceding; it is possible that this may be the case if we consider the great difference in the length of the elytra in certain species of *Lathrobium*, but if it were so we should expect to find brachypterous forms of more species of *Stenus*. L. $2-2\frac{1}{2}$ mm.

Damp places; in moss, &c.; Holm Bush, near Brighton; Tonbridge; Hastings; Knowle; Bewdley; Repton; Lincolnshire; Scotland, rare, Tay and Solway districts; Ireland, Cork.

S. fuscipes, Grav. (*femorellus*, Zett.). Black, rather shining; head as broad as elytra with furrows obsolete, and the interval between them only slightly raised; antennæ moderately long, pitchy, with dark club, palpi dark with first joint testaceous; thorax longer than broad, with surface even, strongly and rather thickly punctured; elytra about as long as thorax, somewhat convex, rather coarsely and not very closely punctured, without depressions; hind body very finely margined, finely and

rather sparingly punctured in centre, more thickly towards sides, with the first segments each furnished at base with four small longitudinal keels; the hind body is much narrower and more pointed in the male than in the female; legs varying from dark to light-reddish brown, with knees darker. L. $2\frac{2}{3}$ mm.

Male with the seventh ventral segment of hind body slightly emarginate and the sixth very slightly sinuate on apical margin.

In damp moss, flood refuse, &c.; not uncommon, but local; London district, generally; Cambridge and Norfolk Fens; Devonshire; Scotland, rare, Solway and Tay districts; Ireland, Armagh: it appears to be found in dry as well as marshy localities.

S. circularis, Grav. Rather depressed, black, dull; head with broad feeble furrows, antennæ short, dark with base lighter, palpi entirely pale testaceous; thorax broader than long, with sides strongly rounded, strongly, very thickly, and rugosely punctured, with the surface even; elytra longer than thorax, and not so closely punctured, rather broad, with an elevation at base between suture and shoulder; hind body rather short, strongly margined, and strongly narrowed behind, so that it appears conical, front segments each furnished with a plain longitudinal keel at base, punctuation rather fine; legs lighter or darker reddish testaceous, with the knees occasionally a little darker. L. $2-2\frac{1}{2}$ mm.

Male with the seventh ventral segment of hind body slightly sinuate at apex.

In damp moss, &c.; on banks of ponds and rivers, and occasionally by sweeping in damp meadows; very local; Eltham, Horsell, Cowley, Mickleham, Esher, Cobham, Woking, Norwood, Wimbledon, Tonbridge: recorded also by Mr. Garneys from Bungay (Suffolk), and from Repton, and by Mr. Haliday from near Belfast.

S. vafellus, Er. (*submarginatus*, Steph.). Leaden black, rather shining, with distinct short grey pubescence; head large, quite as broad as elytra, with broad shallow frontal furrows, the space between being not strongly elevated; antennæ moderate, pitchy brown, maxillary palpi dark pitchy red with the first joint pale; thorax slightly longer than broad, with sides somewhat strongly rounded in front, rather strongly and thickly punctured, sometimes with a trace of a short dorsal channel behind middle; elytra evidently longer than thorax, with the shoulder angles decided, rather strongly and thickly punctured; hind body rather short, narrowed behind, finely and not thickly punctured, front segments with four small keels at base; legs lighter or darker reddish-brown, knees darker, tarsi with fourth joint subcordiform. L. $2\frac{1}{2}-2\frac{2}{3}$ mm.

Male with the seventh segment of hind body broadly and slightly emarginate at apex, sixth segment slightly sinuate and depressed.

This species closely resembles *S. argus*, but has the elytra flatter with

the shoulder angles more decided, and the hind body also flatter with more distinct margins; the elytra also are rather more thickly punctured, and the legs, as a rule, are lighter; from *S. fuscipes* the species may easily be distinguished by its considerably longer elytra, which are more thickly and less strongly punctured, and by the very much stronger margins of hind body.

Marshy places; in moss, &c.; local; rare in the London district, Weybridge; Fen districts, not uncommon (Horning Fen, Wicken Fen, Lincolnshire Fens, &c.): it is also recorded from Manchester; Ireland, Killarney.

***S. declaratus*, Er. (*nanus*, Fauv.).** A short and rather broad species, black, depressed, very slightly shining; in shape it strongly resembles *S. circularis*, the thorax being transverse or subtransverse, with the sides strongly rounded and dilated; it differs from that species, however, in having the palpi black with the basal joint testaceous, and the legs dark pitchy or pitchy red, sometimes a little lighter; the head, moreover, is more deeply furrowed than in *S. circularis*, and the interval is more strongly elevated; the elytra are flatter, rather more even, and longer, being distinctly longer than thorax; the punctuation is thick and rather deep, but considerably less coarse; the front segments of the hind body are not keeled at base, but simply crenulate. L. $2\frac{1}{2}$ mm.

Male with the seventh ventral segment of hind body rather narrowly and feebly emarginate at apex.

In moss, haystack refuse, &c.; common and generally distributed throughout England and Scotland: I can find no Irish record, but it has probably been overlooked in that country.

The legs in this species are sometimes so dark that it is hardly satisfactorily placed in this division; the colour, however, is variable, and is always more or less pitchy.

(SECTION III.)

The species belonging to this section are characterized by having the penultimate joint of the tarsi simple or somewhat cordiform, and the hind body without margins; as here constituted it only contains two species, as *S. nigrutilus*, Gyll., and *S. brunnipes*, Steph., are placed in the following section; Thomson and other authors consider the *v. littoralis* of *S. crassus*, Steph., as a separate species, but it appears to be only a variety; the position of *S. nigrutilus*, Gyll., seems to be somewhat doubtful, as the penultimate joint of the tarsi is only slightly bilobed; on the whole, however, it is best to class it with *S. brunnipes*, &c., in a separate section.

- I. Head scarcely broader than thorax; form stout, upper surface rather shiny; punctuation coarser and not rugose . . . *S. CRASSUS*, Steph.
- II. Head plainly broader than thorax; form rather narrow; upper surface dull; punctuation closer and rugose . . . *S. OPTICUS*, Grav.

S. crassus, Steph. (*crassiventris*, Thoms., *nigritulus*, Er. nec Gyll.). Black, rather shining, clothed with slight, short, whitish pubescence; head scarcely broader than thorax, frontal furrows broad and obsolete with a fine raised middle line; antennæ rather short, black, palpi black, with first joint pitchy-testaceous; thorax rather longer than broad, with sides rounded before middle and narrowed behind, strongly, evenly, and not very closely punctured, without dorsal channel; elytra a little longer, and considerably broader than thorax, and not so closely punctured; hind body rather short, stout, and cylindrical, evidently more narrowed behind in the male than in the female, rather finely and sparingly punctured, with the front segments furnished at base with four small keels; legs black or blackish, tarsi rather short, with the penultimate joint subcordiform. L. $3-3\frac{1}{3}$ mm.

Male with the seventh ventral segment of hind body feebly emarginate at apex.

In manure heaps, haystack refuse, &c.; usually in dry places; local; London district, rather common; Esher, Lee, Amberley, Eltham, Sheerness, Northfleet, Tonbridge; Bungay; Brighton; Weston; Boston; Knowle; Scarborough; Liverpool; Northumberland district, rare, Long Benton, Gosforth, Budle Crag, Wallington; Scotland, local, Solway, Forth, and Tay districts.

V. littoralis, Thoms. (*S. littoralis*, Thoms., *borealis*, Maekl.). Very like the type form, but smaller, with the legs pitchy, and the punctuation closer on the elytra, and thicker and stronger on the hind body; the head also is rather broader and the frontal keel more obtuse, and the keels at the base of the front segments of hind body are more obsolete. L. $2\frac{1}{2}$ mm.

Damp and marshy places; Claygate near Esher, Merton Marsh, Notting Hill and Hammersmith Marshes, Dulwich, Tonbridge; also at Weston-super-Mare: it is probably often confused with small specimens of the type form.

S. opticus, Grav. Dull black; head evidently broader than thorax with large prominent eyes; antennæ and palpi pitchy, the latter with the basal joint testaceous; thorax evenly rounded from middle, but a little more contracted behind than in front, very closely and somewhat rugosely punctured; elytra hardly longer than thorax, and with the punctuation hardly as close but rather stronger, suture shining; hind body narrow, attenuate at apex, rather finely and sparingly punctured, not margined, segments 2-3 with four very small and fine keels at base, 4-6 simply crenulate; legs dark pitchy-red, often almost black, tarsi short with fourth joint simple. L. $2\frac{1}{3}-2\frac{2}{3}$ mm.

Male with sixth and seventh ventral segments of hind body slightly emarginate at apex.

Marshy places, usually in fen districts; rare; Chobham, Surrey; Horning and Ranworth Fens, Norfolk; Derwentwater: Mr. Matthews and Mr. Crotch once took it abundantly at Horning Fen by sweeping in the dark, late at night, and examining the contents of their nets next day: the species was not to be found in the daytime.

This species could not be confounded with any other except *S. crassus*, from which it may at once be separated by its broader head and more prominent eyes, closer punctuation, and much duller appearance.

(SECTION IV.)

The species belonging to this section are four in number, and are usually classed under one or other of the preceding sections; the fourth joint of the tarsi, however, is evidently, although not strongly bilobed, and it seems more satisfactory to remove them from the species with simple tarsi, although they can hardly be placed with the succeeding species.

I Hind body distinctly margined.

- i. Legs quite black; punctuation close, somewhat rugose *S. CARBONARIUS*, Gyll.
- ii. Legs dark pitchy; punctuation strong and rather close, but not rugose *S. ARGUS*, Grav.

II. Hind body not margined.

- i. Legs black; elytra plainly longer than thorax *S. NIGRITULUS*, Gyll.
- ii. Legs pitchy-brown; elytra as long as or rather shorter than thorax *S. BRUNNIPES*, Steph.

S. carbonarius, Gyll. (*opacus*, Er., *debilis*, Rye, *niger*, Mann.).

Rather depressed, dull black, with very fine and short ashy pubescence; head distinctly broader than thorax with two broad shallow furrows, the space between them rather wide and feebly convex; antennæ short, pitchy, palpi brown or dark pitchy red with the base paler; thorax scarcely longer than its greatest breadth, considerably rounded at sides and contracted behind, closely but not very deeply punctured; elytra scarcely longer than thorax, and rather more strongly punctured; hind body moderately narrowed behind, closely punctured, with the front segments obsoletely keeled at base, the most evident keel being in the centre of each; legs black, tarsi often brownish, the latter short and rather thick, with the penultimate joint plainly bilobed for about half its length. L. $2\frac{2}{3}$ – $3\frac{1}{3}$ mm.

Male with the seventh ventral segment of hind body rather broadly emarginate at apex, fifth and sixth somewhat impressed and more thickly punctured in middle of apex.

Marshy places; in flood refuse, moss, &c.; rare; Walton-on-Thames, Weybridge, Dagenham, Chobham, Sunbury, Amberley, Sheppey, Tonbridge; Henley-on-Thames; Wicken Fen; Horning and Ranworth Fens; Burton-on-Trent; Repton; Tewkesbury; Manchester; Northumberland, somewhat doubtful; Scotland; very rare, Solway district; Ireland, Killarney.

This species, as Mr. Rye remarks, somewhat resembles *S. bupthalmus*, but may be distinguished from that species by its flat, dull appearance, and very closely punctured hind body; the structure of the tarsi is, however, one of its best characters.

S. argus, Grav. This species is usually classed with the section

containing *S. vafellus*, &c., to which it is rather closely allied; it is, however, separated by the fourth joint of the tarsi, which is bilobed for half its length; the insect is of a somewhat leaden black colour, rather shining; head broader than thorax with furrows obsolete, and the middle elevation scarcely perceptible; antennæ short, pitchy brown, palpi blackish with first joint testaceous; thorax and elytra rather strongly, thickly, and evenly punctured, the former rather long, with sides feebly rounded and upper surface even, the latter scarcely longer than thorax; hind body subcylindrical, more narrowed behind in male than in female, margins rather feeble and becoming less towards apex, front segments with obsolete keels at base; legs black, tarsi often brownish. L. $3-3\frac{1}{3}$ mm.

Damp and marshy places, in flood refuse, moss, &c.; occasionally in haystack refuse; local and not common; Walton-on-Thames, Belvedere, Cowley, Tonbridge; Henley-on-Thames; Wicken and Horning Fens; Repton; Manchester; Northumberland, very rare; not recorded from Scotland or Ireland.

S. nigrutilus, Gyll. (*nec* Er.), (*unicolor*, W. C. and old collections, *nec* Er.) Rather larger than the allied species; dull black; head distinctly broader than thorax, about as broad as elytra; frontal furrows broad with interval slightly raised; antennæ pitchy, palpi with the basal joint testaceous, and the second and third pitchy testaceous; thorax rounded at sides and gently but decidedly narrowed behind; elytra a little longer than thorax; the whole insect is very strongly and thickly punctured, the thorax especially thickly, rugose; hind body rather long, cylindrical, with only faint indications of keels at base of front segments; legs black, sometimes a little pitchy, tarsi short, with fourth joint evidently bilobed for a portion of its length. L. 4 mm.

Male with the seventh ventral segment of hind body slightly emarginate at apex.

Marshy places, at roots of grass, in haystack refuse, &c.; not uncommon; Lee, Westerham, Wimbledon, Reigate, Greenwich, Amberley, Northfleet, Tonbridge; Bungay; Wicken and Horning Fens; Glanvilles Wootton; Lewes; Brighton; Knowle, near Birmingham; Repton; Scarborough; Northumberland and Cumberland, not common, in burrows of *Bledius arenarius*; Scotland, doubtful, the only record being "South of Scotland, Rev. W. Little," Murray's Cat.

S. brunnipes, Steph. (*unicolor*, Er., *laticollis*, Thoms.). Very like the preceding species in sculpture and general shape, but smaller and more shining with the elytra evidently shorter, hardly as long as thorax; the frontal furrows are a little more marked and the interval between them more raised; the legs are pitchy-red with the coxæ and knees darker, and the antennæ are pitchy with the two basal joints darker; the punctuation of the hind body is a little less strong than in *S. nigrutilus*, and the penultimate joint of the tarsi is more strongly bilobed; the very strong punctuation, short elytra, pitchy legs, and sub-bilobed penultimate joint of the tarsi will distinguish it from all our other species. L. $3-3\frac{1}{3}$ mm.

Male with the seventh ventral segment of hind body broadly and feebly emarginate at apex.

In moss, haystack refuse, by sweeping, &c. ; most abundant and common throughout the kingdom ; one of the commonest of British beetles.

This species somewhat resembles *S. latifrons*, but that species is much less coarsely punctured, and has the elytra longer, and the lobes of the penultimate joint of the tarsi much more strongly developed.

(SECTION V.)

This section contains a considerable number of species, which are characterized by having the penultimate joint of the tarsi bilobed, and the hind body margined ; the colour of the elytra is always unicolorous black, but the colour of the legs is very variable, in some species being quite black, and in others entirely, or almost entirely, testaceous ; in size and form also there is considerable variation, and the section must be considered as somewhat an artificial one.

- I. Posterior tarsi long and slender, evidently longer than half the tibiæ.
 - i. Hind body plainly bordered throughout, not or hardly cylindrical.
 1. Elytra distinctly longer than thorax.
 - A. Legs more or less testaceous ; thorax with central furrow marked.
 - a. Upper surface shiny.
 - a*. Punctuation rather strong and coarse ; apex of femora broadly darker (for about half their length) ; tibiæ more or less dark *S. SUBÆNEUS, Er.*
 - b*. Punctuation finer ; knees only narrowly darker *S. ÆROSUS, Er.*
 - b. Upper surface dull, very thickly punctured ; apex of femora moderately broadly darker (for about one-third of their length) ; tibiæ more or less dark *S. OSSIUM, Steph.*
 - B. Legs reddish brown ; thorax with central furrow obsolete *S. FUSCICORNIS, Er.*
 2. Elytra about as long as thorax.
 - A. Thorax and elytra very strongly punctured ; antennæ long and slender ; size larger *S. GLACIALIS, Heer.*
 - B. Thorax and elytra moderately strongly punctured ; antennæ shorter ; size smaller.
 - a. Upper surface rather dull black without leaden reflection.
 - a*. Legs testaceous with knees only darker ; size larger *S. GENICULATUS, Grav.*
 - b*. Legs dark reddish brown, with the basal half of femora testaceous ; size smaller *S. PALUSTRIS, Er.*
 - b. Upper surface shining black with leaden reflection.
 - a*. Elytra as long as thorax, scarcely widened behind *S. IMPRESSUS, Germ.*

- b*. Elytra at suture rather shorter than thorax, strongly widened behind S. ERICHSONI, *Rye*.
- ii. Hind body scarcely bordered behind, cylindrical S. PALLIPES, *Grav*.
- II. Posterior tarsi not elongate, about half as long as tibiæ.
- i. Third joint of tarsi bilobed for half its length; body clothed with whitish pubescence.
- 1. Tarsi black or blackish.
- A. Hind body subparallel, or only slightly narrowed.
- a. Elytra rather depressed with surface uneven; pubescence longer; size larger S. PUBESCENS, *Steph*.
- b. Elytra more convex with surface nearly even; pubescence shorter; size smaller S. BINOTATUS, *Ljungh*.
- B. Hind body strongly narrowed from base to apex S. CANESCENS, *Rosh*.
(*major*, *Rey*).
- 2. Tarsi testaceous S. PALLITARSIS, *Steph*.
- ii. Third joint of tarsi entire, triangular or cordiform.
- 1. Form linear, very narrow; legs entirely yellow-testaceous S. FLAVIPES, *Steph*.
(*filum*, *Er.*).
- 2. Form more or less broad; legs, in part at least, dark.
- A. Front segments of hind body with a small keel in middle of base; upper surface very shining S. BIFOVEOLATUS, *Gyll*.
- B. Front segments of hind body without keel at base.
- a. Hind body sparingly punctured, especially on disc; surface of elytra somewhat uneven; upper side shiny.
- a*. Hind body finely punctured, with basal impressions of front segments slight; form longer, more parallel S. NITIDIUSCULUS, *Steph*.
- b*. Hind body coarsely punctured; basal impressions of front segments deep; form shorter, broader, and more fusiform S. PICIPENNIS, *Er*.
- b. Hind body thickly and uniformly punctured; surface of elytra even or nearly even; upper side dull.
- a*. Elytra considerably longer and much broader than thorax S. PICIPES, *Steph*.
- b*. Elytra scarcely longer and very little broader than thorax S. FOVEICOLLIS, *Kr*.

S. subæneus, *Er*. (*gonymelas*, *Steph.*). Black, or black with a slight bronze tint, shining; head much broader than thorax, with broad frontal furrows, and the interval between wide and somewhat elevated; antennæ reddish or pitchy testaceous with the two first joints black and the club pitchy, palpi with the apical joint pitchy, the second pitchy testaceous, and the basal joint testaceous; thorax rather longer than broad, with a more or less distinct central furrow and two slight depressions behind middle, rather coarsely and strongly, and somewhat irregularly punctured; elytra plainly longer than thorax and a little more coarsely punctured; hind body rather strongly narrowed towards apex, with the punctuation

much stronger in front than behind; legs testaceous with the coxæ black, and the apex of femora broadly dark; the tibiæ are also more or less pitchy. L. 4 mm.

Male with the seventh ventral segment of hind body very slightly sinuate in middle of apical margin.

Damp places, in moss, flood and haystack refuse, &c.; often in sandpits; local, but not uncommon; Wimbledon, Chatham, Upnor (Kent), Sheerness, Shirley, Reigate, Caterham, Chobham, and several other places in the London district; Tonbridge; Hastings; Granvilles Wootton; Weston-super-Mare; Repton; Lincoln; Preston; Liverpool; Northumberland district, somewhat rare and local; Scotland, Falkirk.

S. ossium, Steph. (*impressipennis*, Duv., *carinifrons*, Fairm., *elevatus*, Mots.). Very closely allied to the preceding, but smaller as a rule, and duller; the basal joint of the antennæ and the two apical joints of the antennæ are pitchy, and the legs are not quite so much infuscate; the species may, however, be at once distinguished by its much closer and finer punctuation, which is especially thick and fine on the hind body. L. $3\frac{1}{2}$ mm.

In moss, haystack refuse, vegetable rubbish, &c.; common and generally distributed throughout England; Scotland, common; Ireland, near Waterford, &c.

S. fuscicornis, Er. Black, somewhat shining, rather depressed; head much broader than thorax, with broad frontal furrows, the interval being somewhat narrow and slightly raised; antennæ and palpi pitchy brown, the latter with the basal joint testaceous; thorax longer than broad, rather strongly and thickly punctured, with the dorsal central furrow absent or obsolete; elytra a little longer than thorax rather strongly and thickly punctured; hind body narrowed to apex, more strongly punctured in front than behind; legs pitchy-red with the apex of the femora and the tibiæ more or less pitchy-black, tarsi long and slender and very deeply bilobed; the lobes, however, are thin and fine, and, if the specimen is much gummed, are hardly noticeable. L. $2\frac{2}{3}$ – $3\frac{1}{3}$ mm.

Male with the seventh ventral segment of hind body rather narrowly and somewhat angularly emarginate at apex, sixth segment very slightly sinuate.

This species bears an exceedingly close resemblance in size, punctuation, and general appearance, to *S. fuscipes*, but, apart from the bilobed penultimate joint of the tarsi, it may be known by the elongate joints of the same, especially, as Rye remarks, by the basal joint of the hinder pair.

In moss, dead leaves, &c., usually in woods; not common; Cobham, Charlton, Greenhithe, Shirley, Coombe Wood, Caterham, Dulwich, Mickleham, Darent, Wimbledon, Purley Downs, Hammersmith, Tonbridge; apparently not found except in the London district and its neighbourhood; in France it appears to be a very common species: it is possible it may have been overlooked, as it closely resembles one or two other species.

S. glacialis, Heer. Black, very shining, with long, thin pubescence; one of our largest and finest species; head much broader than

thorax, at least as broad as elytra, with broad and deep frontal furrows, and the interval raised in an obtuse keel; antennæ elongate, very slender, pilose, testaceous with the club darker, palpi entirely testaceous; head, thorax, and elytra very strongly and coarsely punctured; thorax rounded in front and narrowed behind, with a more or less distinct central furrow and two slight impressions on each side; elytra only slightly longer than thorax; hind body rather long, somewhat strongly and thickly punctured at base, more finely behind; legs testaceous with the femora, at least the intermediate and posterior ones, broadly dark at apex. L. $4\frac{1}{2}$ –5 mm.

Male with the seventh ventral segment angularly emarginate at apex, sixth broadly sinuate, depressed and more thickly punctured in middle.

Rye says of this species (Ent. Ann., 1867, 66) that "it is at first sight strongly suggestive of *S. lustrator*, on account of its size, colour, and very slender limbs; but is not in the same section as that insect, having the penultimate joint of its tarsi bilobed, though narrowly and minutely only;" it disagrees, however, entirely with *S. lustrator* in many other points, being far more shiny, and more closely punctured, with the palpi entirely testaceous, the legs more brightly coloured, &c.; Mulsant and Rey speak of *S. glacialis* as having the penultimate joint of the tarsi "profondément bilobé," but Rye appears to be more correct in saying that the lobes are small, although he rather leads us to imagine that they are smaller than they really are.

In moss in high mountainous districts; very rare in Britain; Cheviots (Hislop), August, 1865; Scotland, very rare, Dee district (Sharp): it occurs rarely in France and Switzerland in alpine and subalpine districts in July and August in moss in forests.

***S. geniculatus*, Grav.** Elongate, rather depressed, dull black; head nearly flat with a polished narrow central line separating the furrows which are feeble and broad; antennæ testaceous, with the first joint pitchy, and the club brownish, palpi testaceous with the apical joint more or less pitchy; thorax longer than broad, with traces of a smooth central line, very closely and rather strongly punctured; elytra as long as thorax strongly and thickly punctured; hind body long, narrowed behind, strongly and closely punctured, more finely behind; legs testaceous with the knees pitchy (the posterior pair more broadly so). L. $3\frac{1}{2}$ mm.

Male with the seventh ventral segment of hind body slightly emarginate at apex.

This species very much resembles *S. ossium*, but it has the elytra shorter in proportion and is more strongly punctured.

In moss, &c., in dry places, especially heathy localities; local; Wickham, Woking, Reigate, Weybridge, Shirley (by sweeping heath at night), Esher, Chobham, Coombe Wood, Hounslow; Snowdon; Scotland, Lowlands and Highlands, scarce, Solway, Clyde, Dee, and Moray districts; Ireland, Newcastle, co. Down.

***S. palustris*, Er.** Rather narrow, black, somewhat shining; head at least as broad as elytra with broad, feeble furrows, separated by a

raised interval which is smooth and shining behind ; antennæ pitchy red with the club, and sometimes first joint, dark, palpi testaceous, with the apical joint pitchy ; thorax oblong, rather strongly rounded at sides, rather strongly and thickly punctured, with a distinct central furrow ; elytra about as long as thorax, and slightly more coarsely punctured ; hind body very little narrowed behind, rather finely and thickly punctured, more finely towards apex, lateral border fine ; legs dark reddish brown, with the basal half of the femora testaceous. L. 3 mm.

Male with the seventh ventral segment of hind body broadly emarginate at apex.

The general form and the somewhat cylindrical and narrowly bordered hind body will at once separate this species from its near allies.

Marshy places, especially in fen districts ; in moss, &c. ; local, but common in places where it occurs ; Bearsted, Kent (Gorham) ; abundant in Wicken Fen, Cambridge ; Horning Fen, Norfolk ; it probably occurs in all the fen districts of the east of England.

S. impressus, Germ. (*aceris*, Lac. *nec* Steph., *carinifrons*, Mots. *nec* Fairm.). Shining black with a leaden reflection ; head as broad as elytra with broad and rather deep frontal furrows, the interval being smooth and shining ; antennæ testaceous with club slightly darker, palpi testaceous ; thorax at widest about as broad as long, strongly but not very closely punctured, with a more or less distinct central furrow and a strong oblique depression on each side behind middle ; elytra as long as thorax, scarcely widened behind, strongly and not coarsely punctured, with the surface impressed and uneven ; hind body rather long, narrowed behind, rather finely and thickly punctured, a little more strongly so at base ; legs entirely testaceous, with the knees, at all events the posterior ones, often a little dusky. L. $3\frac{1}{3}$ – $3\frac{1}{2}$ mm.

Male with the seventh ventral segment of hind body angularly emarginate at apex, sixth slightly sinuate in middle of apical margin, with an obsolete longitudinal furrow which is thickly pubescent.

In moss, haystack refuse, &c. ; common and generally distributed throughout the kingdom.

S. ærosus, Er. (*annulatus*, Crotch, *aceris*, Steph. ?). Very like the preceding ; it may, however, be easily distinguished by having the elytra considerably longer in proportion to the thorax, and by the knees, especially the posterior ones, being evidently ringed with black or fuscous ; Crotch. (Proc. Ent. Soc., Nov. 19, 1886) suggests that it may be a winged form of *S. impressus*, in which case the longer elytra would be analogous to those in the winged forms of *Lathrobium* (*ante*, p. 297), but apart from the differences above mentioned, the punctuation is distinctly closer, so that it must evidently be regarded as a distinct species ; moreover the first joint of the antennæ is often dark and the apical joint of the palpi is more or less fuscous, and the sexual characters are slightly different. L. $3\frac{1}{2}$ –4 mm.

In moss, dead leaves, &c. ; local, but not uncommon where it occurs ; Weybridge,

Esher, Darenth Wood, Hayes (Kent), Mickleham, Wimbledon, Caterham, Plumstead ; Deal ; Isle of Wight ; Bournemouth ; Salisbury ; Hunstanton ; Bromsgrove ; Sutton Park and Knowle, near Birmingham ; doubtful as Scottish ; Ireland, near Waterford, Power.

This species is evidently the *S. ærosus* of Er., and is regarded as such in the catalogue of Heyden, Reitter, and Weise ; in this catalogue, however, both *S. ærosus* and *S. annulatus* are regarded as synonymous with *S. aceris*, Steph., *nec* Lac. ; in Waterhouse's catalogue *S. aceris*, Steph., is given as synonymous with *S. impressus* ; it is most probable that Stephens included both species under his *S. aceris* ; the insect named by Crotch *S. annulatus*, which is the species we are now considering, was long a puzzle to British entomologists, and is alluded to by Rye (Ent. Monthly Mag. i. 91) as still undetermined when he wrote his monograph of the Steni.

S. Erichsoni, Rye (*flavipes*, Er. *nec* Steph.). A small and rather depressed species, shining black, with strong and not very close punctuation ; head considerably wider than thorax, eyes very large, antennæ testaceous with the club darker, palpi testaceous ; thorax at widest about as long as broad, much widened a little before middle and contracted to base, with a more or less distinct dorsal furrow ; elytra about as long as thorax, or a little shorter at suture, strongly widened at apex, so that the apical margin is considerably broader than the basal margin ; this is a point that will at once separate it from the allied species ; hind body broad, but considerably narrowed at apex, with rather strong margins, rather finely and thickly punctured ; legs entirely testaceous, sometimes with a slight fuscous shade at extreme apex of femora. L. 3-3½ mm.

Male with the seventh ventral segment of hind body rather deeply and angularly excised at apex, sixth segment feebly emarginate.

In moss, dead leaves, &c., usually in chalky places ; local ; London district, rather common ; Mickleham, Wimbledon, Caterham, Reigate, Croydon, Warlingham ; Eastbourne ; Bungay, Suffolk (W. Garneys) ; Repton ; Dunham Park, Manchester ; Cumberland, rare ; Scotland, Falkirk (Rye).

S. pallipes, Grav. About the size and general appearance of *S. Erichsoni*, but narrower, with the hind body longer and more cylindrical, with much finer margins which are almost effaced behind ; the whole upper surface is much duller and more pubescent, and the punctuation is finer and closer ; the elytra are not widened behind or contracted at shoulders, and the legs, as a rule, are rather darker testaceous with the slight pitchy suffusion more marked ; in the male the seventh ventral segment only is emarginate. L. 3-3½ mm.

Marshy places ; in moss, flood refuse, &c. ; local ; London district, not uncommon, Wimbledon, Tottenham, Staines, Peckham, Dulwich, Lee, Eltham, Egham, Shirley, Tonbridge ; formerly common at Hammersmith Marshes ; Hastings ; Bungay ; Holme Bush, Brighton ; Barnstaple ; Malvern ; Barmouth ; Knowle ; Needwood Forest ; Repton ; Northumberland district, rare, Gibside and Ravensworth Woods ; not recorded from Scotland or Ireland.

S. flavipes, Steph. (*flum*, Er.). This very distinct species is easily recognized by its elongate, linear, and almost parallel form ; it is black, rather shining, with the legs, palpi, and antennæ yellow, the latter with the basal joint black and the two apical joints fuscous ; head much broader than thorax, with plain frontal furrows, the interval broad, not much raised, and smooth ; thorax longer than broad, rather finely and not closely punctured with a smooth space on middle of disc ; elytra slightly longer than thorax, a little widened behind, moderately strongly but not closely punctured ; hind body elongate, rather widely margined, more sparingly punctured on disc than at sides, apical segments nearly smooth ; legs testaceous, coxæ black, tarsi very short and thick. L. 3 mm.

Male with the seventh ventral segment of hind body rather strongly emarginate in an angle, fifth and sixth with longitudinal impressions which are punctured and pubescent.

Marshy and damp places, especially in woods ; in moss, at roots of grass, and very commonly by sweeping rushes or other herbage in many damp or shady localities ; common and generally distributed throughout the Southern and Midland districts of England ; not so common further north ; Scotland, local, Tay district only ; Ireland, near Waterford.

S. pubescens, Steph. (*subimpressus*, Er.). A large, elongate, and rather parallel-sided species, dull leaden black, clothed with fine and distinct whitish pubescence ; head broader than thorax, with the frontal furrows not deep and the interval only moderately raised ; antennæ testaceous, with first joint black, and club pitchy, palpi pitchy, with base testaceous ; thorax oblong, rounded at sides before middle, rather finely and thickly punctured, with two rather strong impressions behind middle ; elytra longer than thorax, rather finely and thickly punctured, with obsolete impressions ; hind body subparallel, only slightly narrowed behind, finely and thickly punctured, rather strongly margined ; legs black, tarsi lighter, with third and fourth joints bilobed. L. 5–5½ mm.

Male with the seventh ventral segment furnished with a broad, deep, somewhat semicircular notch, the inner apex of which is slightly elevated, sixth simply depressed and slightly produced in centre, fourth and fifth rather broadly, but very slightly emarginate, depressed in middle, the depressions being punctured and pubescent and having on each side of their extremity a minute elevation.

Marshy places ; at roots of grass, &c. ; also on clayey banks of rivers ; rather common and generally distributed throughout England ; rarer further north ; Scotland, not common, Solway, Tweed, and Forth districts ; Ireland, near Belfast.

S. binotatus, Ljungh. Very similar to the preceding, but smaller, less robust with the legs not so stout, the antennæ shorter and darker (pitchy-red with the basal joint and club pitchy), and the palpi less testaceous at the base of the joints ; the head and thorax also are narrower, the elytra shorter, and the punctuation rather coarser and closer ; in the male the seventh ventral segment has a deep triangular notch, and the

third, fourth, and fifth segments are slightly depressed in the middle of the hinder margin. L. $4\frac{1}{2}$ –5 mm.

Marshy places; at roots of grass, in moss, &c.; local; London district, not uncommon and widely distributed; Bungay; Hastings; Brighton; Cambridgeshire and Norfolk Fens; Coleshill; Sutton Park; Cannock Chase; Repton; Boston; Liverpool; Manchester; Northumberland, Durham, and Cumberland; Scotland, scarce, Tweed and Forth districts.

S. canescens, Rosh. (*major*, Rey). Closely allied to *S. pubescens*, and about the same length as that insect, but more robust, with the front parts wider and the hind body conical, contracted from base to apex, the apex being very acuminate; this character will at once distinguish it; the head, also, is wider; the antennæ are darker at the base, and the whole insect is a little more shining; the thorax is considerably wider than in *S. pubescens* and is broadest in the middle, whereas in the latter insect it is rather narrow and broadest before middle; in the male the seventh ventral segment of hind body is deeply excised in a rounded angle, and the fourth, fifth, and sixth segments are broadly and slightly emarginate, depressed in middle, with the depression ciliated with white hairs at the sides. L. 5– $5\frac{1}{2}$ mm.

Marshy places; at roots of grass, &c.; local and, as a rule, rare; it sometimes, however, occurs in considerable numbers; Southend, Wimbledon, Darenth Wood, Faversham (in numbers, J. J. Walker), Snodland, Merton, Ealing, Richmond Park, Maidstone; Sandwich; Stretford and Bowdon, near Manchester.

S. pallitarsis, Steph. (*plantaris*, Er., *cavifrons*, Rey). Rather depressed, leaden black; of the same general appearance as *S. binotatus*; it may, however, be at once distinguished by having the tarsi, the whole of the palpi, and the antennæ (except the club which is fuscous) yellow- or reddish-testaceous; the punctuation is fine, and much resembles that of *S. pubescens*, from which it may be easily distinguished by the characters just mentioned; it is, moreover, rather more shining than either of these two species, and has the hind body evidently more acuminate at apex; in the male the seventh ventral segment of hind body is very deeply notched, the notch being rounded triangular, and the third to the sixth segments are more or less depressed in the middle of hinder margin. L. $4\frac{1}{2}$ –5 mm.

Marshy places; in moss, at roots of grass, in stems of reeds, &c.; rather local; Walton-on-Thames, Woking, Mickleham, Tilgate, Ripley, Barnes, Weybridge, Sheerness, Maidstone; Henley; Bungay; Margate; Hastings; Lowestoft; Brighton; Devonshire; Whitsand Bay, Plymouth; Swansea; Wicken and Horning Fens; Sutton Park; Repton; Northumberland district, rare; Scotland, local, Solway, Forth, Tay, and Dee districts.

V. niveus, Fauvel. This variety, regarded as a separate species by many authors, is much smaller than the type, narrower, and more linear, with the hind body more parallel, and the tarsi of a darker testaceous colour; the frontal impressions are deeper, and the interval between them

more convex, and there are other minor differences, but not enough to raise it to the level of specific rank. L. 4 mm.

Not uncommon in the Solway district of Scotland, but I know of no other locality. Loch Arthur and Thornhill, Dumfries (Sharp).

S. bifoveolatus, Gyll. (*nec* Er.), (*plancus*, Er., *nitidus*, Steph., *phæopus*, Steph.) A species that is easily recognized by its very deep black colour, and shining appearance; form almost cylindrical; head wide with moderate frontal furrows separated by a rather wide interval; antennæ ferruginous or rufo-testaceous with the basal joint black, and the club brownish, palpi testaceous at base more or less pitchy towards apex; thorax and elytra rather strongly and moderately closely punctured, the former with a very obsolete impression on each side behind middle, and an irregular smooth dorsal space in middle, the latter about as long as, or very little longer than, thorax, slightly widened behind; hind body long and cylindrical, finely bordered, with the front segments furnished with distinct keels in middle of base; legs more or less pitchy. L. $3\frac{1}{2}$ –4 mm.

Male with the seventh ventral segment of hind body broadly and angularly excised at apex, fifth and sixth longitudinally impressed, the impressions being more distinctly pubescent.

In moss, dead leaves, &c.; damp and marshy places; rather common and generally distributed throughout England; Bold, however, records it as somewhat uncommon in the Northumberland district; Scotland, common in the southern districts and probably further north also; Ireland, near Waterford, &c.

S. nitidiusculus, Steph. (*tempestivus*, Er.). A somewhat depressed, parallel-sided species, shining black, with a slight brassy reflection; head, thorax, and elytra finely and rather thickly punctured, the punctuation being not so close on the elytra; head broad, frontal furrows plain, with the interval rather strongly raised; antennæ testaceous, with the first joint black, and the club a little darker, palpi testaceous; thorax a little longer than broad, with a well-marked oblique depression on each side behind middle; elytra about as long as or a little longer than thorax, as a rule contracted at shoulders and widened behind, with several deep and irregular depressions; hind body broad, almost parallel until near apex, where it is rather abruptly narrowed, with margins strong in front but wanting on apical segments, finely and not thickly punctured; legs testaceous, with the coxæ black, and the knees more or less broadly infusate. L. 4– $4\frac{1}{2}$ mm.

Male with the seventh ventral segment emarginate at apex in a rounded angle, fifth and sixth slightly sinuate and impressed at extreme apex.

Marshy places, banks of rivers, &c.; in moss, flood refuse, &c.; rather common and generally distributed throughout England; Scotland, common in Lowland districts as far north as the Shetlands; Ireland, Armagh, &c., and probably common.

This insect has the elytra rather strongly contracted, as a rule, at the shoulders, and consequently broader at apex than at base; this is due to the species being apterous; in Dr. Power's collection, however, there is

a specimen from Lee, Kent, with the elytra broader and longer than in the ordinary forms, with the shoulders strongly squared and very marked, and not at all contracted; this is, I think, probably a winged form; it appears to be very rare.

S. picipennis, Er. Deep black, shining; head evidently broader than thorax, with broad and deep furrows, the interval being raised rather strongly; antennæ, including basal joint, testaceous, with club dusky, palpi testaceous; thorax at widest as broad as long, with sides strongly rounded, rather strongly and not very thickly punctured, less closely on disc, with an evident depression on each side behind middle; elytra a little longer than thorax, rather strongly punctured, with several uneven depressions; hind body short and stout, contracted towards apex, with the hinder margin of the first four or five segments smooth and rather broadly elevated, coarsely punctured at base of the segments and at sides; legs testaceous, knees more or less broadly infuscate. L. $3\frac{1}{2}$ –4 mm.

Male with the seventh ventral segment of hind body broadly and angularly emarginate, sixth somewhat depressed, very finely and thickly punctured in middle, with long and thick pubescence.

Damp and marshy places; in moss, at roots of grass, &c.; local; Wimbledon Common (reedy places, not uncommon); Dulwich, Barnes, Peckham, Cowley, Ealing, Merton, Southend; Folkestone; Isle of Wight; Sutton Park, Birmingham; Repton; Preston, Lancashire; Manchester district; not recorded from the extreme north of England; Scotland, very rare, Forth district only.

The coarser punctuation and light basal joint of antennæ will at once separate this species from the preceding.

S. picipes, Steph. (*rusticus*, Er., *spretus*, Fairm.). Rather flat and broad; dull leaden black, hind body a little more shining; head with broad frontal furrows, the interval not strongly raised; antennæ testaceous with the first joint black or blackish, and the club dusky, palpi testaceous; punctuation of whole upper surface moderately strong and very thick; thorax scarcely longer than broad, broadest before middle; elytra distinctly longer than thorax, with disc almost even; hind body rather short, distinctly narrowed towards apex; legs pitchy red or pitchy brown, with coxæ and knees dark. L. $3\frac{1}{2}$ –4 mm.

Male with the seventh ventral segment of hind body sharply and narrowly excised at apex.

In haystack refuse, moss, cut grass, &c.; often by sweeping; both in damp and dry localities; common and widely distributed throughout the kingdom.

S. foveicollis, Kr. (*bifoveolatus*, Er. *nec* Gyll., *brevicollis*, Thoms., *brevicornis*, Sharp's Cat. 2nd Ed.). Very like the preceding, and, as Mulsant and Rey observe, it might be mistaken for a variety of it; it is, however, smaller and more parallel, with the elytra shorter and considerably narrower in proportion to thorax, and a little more strongly and

less closely punctured; the hind body also is more sparingly punctured on the centre of the segments, and has the basal impressions of the front segments deeper; the legs also are much more brightly coloured, being dark reddish testaceous with the knees more or less broadly fuscous; both this and the preceding species may be at once distinguished from all their allies by their dull appearance, and the close punctuation of the hind body. L. $3\frac{1}{3}$ – $3\frac{1}{2}$ mm.

Marshy places, in moss, sphagnum, &c.; rare; Hayes (Kent), Esher, Horsell, Woking; New Forest; Repton; Manchester; Scotland, local and not common, Solway, Clyde, Dee, Moray, and Shetland districts; it probably occurs in many other localities.

(SECTION VI.)

The single species contained in this section is characterized by having the penultimate joint of the tarsi strongly bilobed, the hind body not margined, and each elytron furnished with a large and distinct orange-red spot.

S. Kiesenwetteri, Rosh. Black, when alive almost blue-black, very shining, very coarsely punctured; head broad with very prominent eyes, forehead almost flat, the central interval being only slightly elevated; antennæ and palpi testaceous, the base and club of former being usually a little darker than the centre; thorax a little longer than broad, moderately rounded at sides; elytra about as long as thorax, each with a large orange-red spot; hind body somewhat cylindrical, without margins, more closely punctured at sides and apex; femora with a broad orange band in middle, tibiæ pitchy with apex testaceous, tarsi dull testaceous. L. 5–6 mm.

Male with the seventh ventral segment of hind body deeply excised, the third, fourth, and fifth slightly depressed at apex.

Marshy places, in sphagnum, and at roots of grass; rare; first taken by Dr. Sharp on Wimbledon Common; Chobham, Surrey (Champion); New Forest (Blatch).

This species closely resembles *S. cicindeloides* in shape, sculpture, and general appearance, but may at once be known by the spots on the elytra.

(SECTION VII.)

The species belonging to this section have the tarsi strongly bilobed, the hind body not margined, and the elytra without spots; they differ very much in general appearance, and, with one or two exceptions, are very easy to determine. *S. oscillator*, Rye, rests on a single specimen, and no other has been found either in Britain or on the Continent; it is, therefore, rather doubtful, and may perhaps be a hybrid between *S. paganus* and *S. latifrons*.

- I. Hind body subparallel, not strongly narrowed behind; elytra not abnormally dilated.
 - i. Antennæ entirely testaceous, club a little darker; size larger.

1. Upper surface, especially front parts, very coarsely punctured, shiny *S. CICINDELOIDES*, Grav.
2. Upper surface of head, thorax, and elytra finely, of hind body very finely, punctured, rather dull. *S. SOLUTUS*, Er.
- ii. Antennæ testaceous with the first joint black, club a little darker; size larger.
 1. Legs testaceous, with knees black *S. SIMILIS*, Herbst.
 2. Legs black, with tarsi reddish testaceous *S. TABSALIS*, Ljungh.
- iii. Antennæ with the two first joints and the club blackish; size smaller.
 1. Antennæ with joints 3-8 yellow testaceous.
 - A. Upper surface less shiny, more strongly and closely punctured; legs lighter, pitchy brown. *S. PAGANUS*, Er.
 - B. Upper surface more shiny, less strongly and not quite so closely punctured; legs darker, almost black *S. OSCILLATOR*, Rye.
 2. Antennæ with joints 3-8 dark pitchy red; legs dark pitchy *S. LATIFRONS*, Er.
- I. Hind body conical, strongly narrowed from base to apex; elytra large, broad, and convex, very strongly dilated *S. FOENICATUS*, Steph.

S. cicindeloides, Grav. Elongate, convex, shining black, very coarsely and deeply punctured; head a little broader than thorax, broadly furrowed, the raised interval being rather sharp and distinct, but variable; antennæ entirely testaceous, with club brownish, palpi testaceous; thorax rather longer than broad, not much rounded at sides; elytra scarcely longer than thorax, and not quite so closely punctured; hind body cylindrical, without margins, less closely punctured on middle of front segments than at sides and apex; legs testaceous yellow, with the base of femora slightly, and the apex widely, pitchy black; tibiæ pitchy with apex more or less testaceous yellow, tarsi pitchy testaceous. L. 5-6 mm.

Male with the seventh ventral segment of hind body acutely excised in a sharp angle.

Marshy places; at roots of grass, &c.; generally distributed and common in the London, southern, and midland districts; rarer further north, and not recorded from the Northumberland district; Scotland, rare, Solway district only.

S. similis, Herbst. (*oculatus*, Grav., *modestus*, Lac., *siculus*, Stierl.). Of a rather dull grey leaden-black colour, with fine, short, rather close pubescence; head nearly as broad as elytra with broad and not deep frontal furrows, the interval being broad and well defined but very slightly raised; antennæ testaceous with the basal joint deep black, and the club sometimes a little darker, palpi testaceous; upper surface closely and moderately strongly punctured, the punctuation, however, being very fine in comparison with that of *S. cicindeloides*; thorax a little longer than broad, moderately rounded at sides, with an obsolete impression on each side, often hardly traceable; elytra a little longer than thorax, and a little more strongly and less closely punctured; hind body uniformly and moderately strongly punctured, with the punctuation

much closer than that of elytra ; legs yellow, the extreme apex of the femora, base of the tibiæ, and apex of the three first joints of the tarsi on the upper side, pitchy black ; the black colour extends for a greater extent at the knees on the posterior legs, but in these barely extends to a quarter of the length of either the femora or tibiæ ; the coxæ are black. L. $5-5\frac{1}{2}$ mm.

Male with the seventh ventral segment of hind body deeply emarginate, fifth slightly depressed, sinuate in the middle of hinder margin, the sinuation furnished with a very minute blunt tooth on either side.

In haystack refuse, moss, and vegetable rubbish generally ; usually in comparatively dry places ; often by sweeping, as indeed is the case with the majority of the *Steni* with bilobed penultimate joint of the tarsi ; common and generally distributed throughout the kingdom.

***S. solutus*, Er.** Very closely allied to the preceding in size and general appearance, but rather darker and more shining, with the basal joint of the antennæ testaceous (and not deep black as in *S. similis*) and the black colour on the intermediate and posterior femora and tibiæ extending for about half the length of the former and for more than half the length of the latter ; the coxæ are pitchy red ; the elytra are narrower in proportion, and the thorax and elytra are not so strongly or closely punctured ; the hind body is very finely punctured, and is rather smooth and shining on the centre of its upper surface ; this character alone will serve to separate it from *S. similis*. L. $5-5\frac{1}{2}$ mm.

Male with the seventh ventral segment deeply and angularly emarginate, fifth slightly depressed in middle and feebly emarginate at apex, third and fourth a little depressed.

Marshy places ; in the stems of reeds, &c., often almost in the water ; rare ; Lee, Blackheath, Mickleham, Cowley, West Drayton, Dagenham, Horning Fen ; Birchington, near Margate ; Sutton Park and Knowle, near Birmingham.

***S. tarsalis*, Ljungh (*roscidus*, Snellen.).** Greyish black, very slightly shining, clothed with fine, short, rather close, whitish pubescence ; head as broad as elytra with a wide and not very distinct central elevation and feeble frontal furrows ; antennæ rather short, rufo-testaceous, with the basal joint black, and the club brownish, palpi testaceous, sometimes a little pitchy ; thorax a little longer than broad, moderately rounded at sides, closely and rather strongly punctured ; elytra depressed, longer and more strongly punctured than thorax, the punctuation, however, not being so close ; hind body strongly punctured, cylindrical, more shining than the front parts ; legs black or blackish, tarsi more or less obscurely testaceous, sometimes almost dark, claws always black. L. $4-4\frac{1}{2}$ mm.

Male with the seventh ventral segment of hind body broadly and slightly emarginate at apex, fifth with a small semicircular impression in middle of its hinder half bordered with long hairs, fourth thickly pubescent in middle.

In haystack refuse, moss, at roots of grass, &c., in marshy places; I have also taken it commonly by sweeping in osier-beds; common and generally distributed throughout the greater part of the kingdom.

S. paganus, Er. (*fulvicornis*, Steph.). This species is of much the same build and shape as the preceding, but is considerably smaller, and the punctuation is relatively stronger; leaden-black, slightly shining; head as broad as elytra, with the frontal furrows slight and the interval between them broad and not much raised, but rather variable, and sometimes almost keeled; antennæ short, testaceous, with the two basal joints and the club blackish, palpi testaceous, with apical joint brownish; thorax a little longer than broad, strongly and thickly punctured; elytra longer than thorax, and with about the same punctuation; hind body strongly and thickly punctured, more finely behind; legs pitchy brown, or reddish brown, with knees darker. L. $3-3\frac{1}{3}$ mm.

Male with the seventh ventral segment of hind body deeply and narrowly excised in a sharp angle, sixth rather broadly emarginate, with a broad impression which is punctured and pubescent just before apex, the impression terminated on each side by a small blunt elevation or keel, fifth segment depressed, and punctured and pubescent, on its median line.

Marshy places; in moss, haystack refuse, at roots of grass, &c.; somewhat local, but generally distributed throughout the greater part of England; rarer in the north; Scotland, local, Solway, Tweed, Forth, Tay, and Clyde districts; Ireland, near Belfast, Waterford, &c.

S. latifrons, Er. Closely allied to the preceding, but easily distinguished by its more linear form, somewhat different punctuation, and the darker colour of the legs and antennæ; the elytra are rather shorter and narrower in proportion to the thorax, and the male characters are somewhat different, the impressions on the fifth and sixth ventral segments being a little less strong and less pubescent: this and the preceding species bear a considerable resemblance to *S. brunnipes*, Steph., but that insect may be at once distinguished by its much less strongly bilobed tarsi and short elytra; from *S. paganus*, moreover, it differs by its much darker legs and antennæ, and from *S. latifrons* by its coarser punctuation. L. $3-3\frac{1}{2}$ mm.

Found in the same localities as the preceding, and very often in company with it; rather local, but not uncommon in the London, southern, western, and midland districts; rarer further north; Northumberland district, rare; Scotland, local, Solway, Forth, and Tay districts.

S. oscillator, Rye. This species appears to be intermediate between *S. paganus* and *S. latifrons*, having the palpi and antennæ coloured as in the former, and the dark legs of the latter; from both, however, it differs in its evidently less strong and close punctuation, and more shining appearance; the head is very shining and has the interval between the frontal furrows more marked, and the shape of the thorax is a little different, being less suddenly and more slightly

contracted behind; the antennæ, also, are thinner and longer than in *S. latifrons*, and more resemble those of *S. tarsalis*. L. $3\frac{1}{3}$ mm.

A single specimen was taken by Dr. Power at Holm Bush, Brighton, on April 19th, 1863; as stated above, it may be a hybrid between *S. latifrons* and *S. payanus*, but it certainly appears to be quite distinct from either.

S. fornicatus, Steph. (*contractus*, Er.). One of the most distinct of all the Steni, and at first sight appearing generically different; deep black, shining; head small, scarcely broader than thorax, thickly and deeply punctured, with a small, not strongly raised, smooth elevation between the frontal furrows, which are broad and obsolete; antennæ pitchy, lighter at base, palpi blackish, with first joint testaceous; thorax as broad as long, slightly rounded at sides, subquadrate, coarsely, deeply, and closely punctured; elytra very large and inflated, twice as broad as head and thorax, nearly as long as hind body, coarsely and deeply punctured; hind body much narrower than elytra, conical, strongly narrowed from base to apex, very acuminate, with base of segments strongly and coarsely punctured. L. 2 mm.

Male with the seventh ventral segment angularly excised at apex, sixth depressed, thickly punctured in centre, slightly sinuate on apical margin, fifth emarginate, with an impression at apex, which is crescent-shaped, and has the extremities of its raised margin produced on each side in the form of a tooth projecting beyond the apex of the segment.

Marshy places; at roots of grass, &c.; not common; Woking, Barnes, Horsell, Peckham, Esher, Hammersmith, Bishops Wood, Hampstead, Colney Hatch, Loughton; Maidstone; Horning Fen; Weston-super-Mare.

OXYPORINÆ.

Only one genus is contained in this group, which is remarkable for the great development of the last joint of the labial palpi, which is very much dilated and crescent-shaped, giving the palpus the appearance of a stalked cup-moss or fungus; the anterior coxæ are prominent and conical, and the intermediate pair are very widely separated.

OXYPORUS, Fabricius.

This genus contains about twenty-four species, which mostly inhabit temperate and cold climates; they are found in North America, Northern Asia, and Japan, and three or four species occur in Europe; species have also been described from Central America; our single species is a very striking and handsome insect; it lives in the gills of fungi.

The larva of the continental *Oxyporus maxillosus* is described and figured by Schiödt (Part ii., p. 118, fig. xi. 1): it is rather short, broad, and linear, with the head rather small, narrowed in front, considerably narrower than thorax; prothorax

transverse, longer than either meso- or meta-thorax, all three segments with distinct muscular impressions; the scuta of all the segments are nearly complete; the ninth segment is very small, and bears two very short cerci and a cylindrical anal appendage of about the same length as these latter; legs short; the colour is pale yellow, but the head and dorsal scuta are pale ferruginous, so that the upper surface appears almost entirely reddish; the larva is found, like the perfect insect, in agarics.

O. rufus, L. Oblong, rather broad, smooth and shining, with the head and apical-segments of hind body deep black, the thorax and the remainder of the hind body bright red, and the elytra black with a broad testaceous red patch on each at shoulders, which almost meet in a point at apex, but are divided by the scutellum, which is black; head transverse, rectangular, forehead impressed on each side; antennæ very short, strongly thickened and compressed towards apex, reddish testaceous with the apex often a little darker, joints 6–10 strongly transverse; thorax short, transverse, much broader than long, smooth or almost smooth; elytra transverse, a little longer than thorax, shoulders very strongly marked, with more or less irregular rows of very large punctures on disc; hind body short, somewhat rounded at sides and strongly narrowed at apex, very finely and sparingly punctured; legs reddish testaceous, with the coxæ, trochanters, and base of femora black. Length very variable: I have specimens ranging from $5\frac{1}{2}$ –10 mm.

Male with the seventh ventral segment of hind body broadly and somewhat angularly emarginate at apex; head a little broader than thorax; female with the seventh ventral segment rounded at apex; head about as broad as thorax.

In decaying fungi, eating passages through the gills; local, but not uncommon, and rather widely distributed; Sevenoaks, Chatham, West Wickham, Chobham, Coombe Wood, Westerham; Suffolk; Norfolk; Pegwell Bay; Hastings; Winchester; Devonshire; Swansea; Llangollen; North Wales generally; Kidderminster and Stourport, Worcestershire; Repton; Scarborough; Cheshire; Manchester district; not recorded from the extreme north of England, Scotland, or Ireland.

OXYTELINÆ.

This sub-family contains, as at present constituted, between twenty and thirty genera, which are generally distributed; they have the head large, and the antennæ eleven-jointed, usually, although not always, short and thickened towards apex; the anterior coxæ are large, conical, and prominent, and the posterior are transverse; the legs are short, and the tibiæ, at least the anterior and intermediate pairs, are more or less spinose externally; in the chief genera, such as *Bledius* and *Oxytelus*, the tarsi are three-jointed, but in *Acrognathus* and *Coprophilus* and one or two others they are five-jointed.

I. All the tarsi 3-jointed.

i. Anterior, and sometimes intermediate, tibiæ formed for digging, more or less spinose externally.

1. Intermediate coxæ more or less distant; anterior tibiæ with one row of spines.

- A. Thorax with a central longitudinal furrow only; elytra dehiscent at apex *PLATYSTETHUS, Mannh.*
- B. Thorax with three more or less distinct longitudinal furrows; elytra not dehiscent at apex *OXYTELUS, Grav.*
- 2. Intermediate coxæ contiguous.
 - A. Elytra finely bordered at sides; anterior tibiæ with two rows of spines *BLEDIUS, Mannh.*
 - B. Elytra not bordered at sides; anterior tibiæ with one row of spines.
 - a. Mandibles short, toothed; last joint of maxillary palpi small, subulate *HAPLODERUS, Steph.*
 - b. Mandibles long, simple; last joint of maxillary palpi large, as long as the two preceding together, acuminate *COMPSOCHILUS, Kraatz.*
- ii. Anterior tibiæ not formed for digging, finely ciliate or pubescent.
 - 1. Last joint of maxillary palpi very small, subulate.
 - A. Elytra not truncate obliquely or dehiscent; body somewhat convex, scutellum hidden *TROGOPHILÆUS, Mannh.*
 - B. Elytra obliquely truncate and dehiscent at sutural angles; scutellum visible *THINOBIUS, Kies.*
 - 2. Last joint of maxillary palpi as long as the preceding *ANCYROPHORUS, Kraatz.*
- II. All the tarsi 5-jointed.
 - i. Anterior tibiæ formed for digging, spinose.
 - 1. Reflexed margin of thorax sinuate in middle and strongly and angularly dilated behind anterior coxæ; maxillary palpi not elongate and rather thick *COPROPHILUS, Latr.*
 - 2. Reflexed margin of thorax angularly dilated in middle; maxillary palpi elongate and slender *ACROGNATHUS, Er.*
 - ii. Anterior tibiæ not formed for digging, pubescent.
 - 1. Antennæ short with three last joints forming a club, and the first two joints thickened; size small *SYNTOMIUM, Er.*
 - 2. Antennæ rather long, gradually thickened, second joint not thicker than the following; size comparatively large *DELEASTER, Er.*

BLEDIUS, Mannerheim.

This genus appears to be widely spread over the world, and in all probability is much more generally distributed than is at present known; as now constituted it contains about 150 species, the majority of which occur in Europe and the temperate regions of North America; several have been described from Chili, and the genus is represented in India and Ceylon, Japan, Arabia, the Australian region, the Amazon and other districts of tropical South America,* and also in Siberia.

The genus *Bledius* is somewhat closely related to *Oxytelus* by reason of its three-jointed tarsi and other characteristics; it may, however, be easily distinguished by having simply a central furrow or an impunctate line on

* Only seven or eight species, all inconspicuous, occur in South America.

the thorax, and by its anterior tibiæ being armed with two rows of spines; this latter character and the contiguous intermediate coxæ, as well as the more parallel and cylindrical form, will serve to separate it from *Platystethus*; the species are all fossorial, and are found in clayey and sandy places digging galleries in the mud or damp soil; they throw up small casts, and by these their presence may easily be detected by any person acquainted with their habits; as they do not often appear above ground unless disturbed, they are perpetually passed over, and in this way some of the species, which are really locally common, have come to be considered generally rare; they are slow in their movements; as a rule our species are found in company with species of *Dyschirius*, which prey upon their larvæ and pupæ; there are about fifty European species, of which sixteen or seventeen are British; there is, however, a little doubt with regard to the specific value of one or two that have hitherto been received.

Several larvæ of species of *Bledius* have been described; I have found the larva and pupa of *Bledius dissimilis* in numbers in the sides of the clay cliffs at Bridlington, Yorkshire; the pupæ were in small hollow chambers or cells which they had evidently formed before undergoing their transformation; the general characteristics of the larvæ of *Bledius* are as follows: head transverse, broader than thorax; ocelli three in number, the two front ones the largest; legs fossorial, tibiæ armed with strong spines; cerci solid, setose; anal appendage very short, often apparently absent; the larvæ of the genus appear to fall under two divisions; in one of these the body is much strangulated behind the head; the thorax is cordate, much narrower than the head, and the meso- and meta-thorax are very narrow; the first segment of the abdomen is a little broader than the metathorax, and the next become gradually wider to the seventh and eighth where the abdomen is much dilated; to this division belong the larvæ of *B. tricornis*, *B. fracticornis*, &c.; in the second division the whole body is broader and less narrowed behind, and the pro-, meso-, and meta-thorax are of about equal breadth, the first being subquadrate; to this must be referred the larvæ of *B. pallipes*, &c.; the division almost appears to be a generic one.

The pupa of *B. tricornis* is very extraordinary, the thoracic region being produced in front in a long, broad, and blunt protuberance, and the "styli motorii" at the sides of the body and on the apex of thorax being stout and very long; the general form is oblong, and the abdominal region is very little narrowed behind and terminates in two short and thick conical cerci (*v. Schiödte*, part ii., p. 121, pl. xii., 4, 14, 23).

I. Thorax with a distinct central furrow.

- i. Thorax in front armed with a strong projecting horn in male; head furnished with two horns or horn-like prominences in male, and two less distinct prominences in female.

- 1. Horns on the head of male very long; posterior tibiæ with four long spines near base; elytra black or yellowish-testaceous, with scutellary region often darker

B. TAURUS, *Germ.*

- 2. Horns on the head of male taking the form of two more or less raised blunt prominences; posterior tibiæ with one spine only near base.

- A. Head with eyes plainly narrower than thorax; size larger; elytra (except scutellary region) red or reddish testaceous.

- a. Thorax sparingly punctured with somewhat

- raised impunctate spaces scattered over disc B. *SPECTABILIS*, Kr.
- b. Thorax more closely and evenly punctured, with impunctate spaces wanting or present only near central line B. *TRICORNIS*, *Herbst*.
- B. Head with eyes as broad as thorax; size small; colour usually unicolorous black, elytra rarely pitchy or even testaceous B. *UNICORNIS*, *Germ*.
- ii. Thorax not armed with a horn in male.
1. Head produced into a short but more or less distinct horn-like prominence on each side B. *BICORNIS*, *Germ*. (*Ruddii*, *Steph.*).
2. Head without horns or horn-like prominences.
- A. Antennæ rather slender with an abrupt three-jointed club; elytra very light yellowish testaceous (almost whitish in life), with scutellary region more or less broadly black B. *ARENARIUS*, *Payk*.
- B. Antennæ with a more or less gradual and elongate club.
- a. Posterior angles of thorax viewed from above well marked, and projecting in a minute tooth.
- a*. Elytra black or pitchy black; antennæ dark with base reddish testaceous; punctuation of thorax fine.
- a†. Elytra not more than one and a half times as long as thorax; mandibles stout; labrum entire or feebly sinuate. B. *PALLIPES*, *Grav*.
- b†. Legs lighter; antennæ more slender B. *FUSCIPES*, *Rye*.
- b‡. Legs darker; antennæ stouter, much thickened towards apex B. *SUBTERRANEUS*, *Er*.
- b†. Elytra nearly twice as long as thorax; mandibles slender; labrum more or less bilobed B. *LONGULUS*, *Er*.
- b*. Elytra reddish testaceous; antennæ entirely red; punctuation of thorax strong B. *LONGULUS*, *Er*.
- b. Posterior angles of thorax viewed from above blunt or quite rounded.
- a*. Thorax rather strongly and thickly punctured.
- a†. Antennæ dark with base red; forehead distinctly punctured; elytra usually red, sometimes dark B. *FRACTICORNIS*, *Payk*.
- b†. Antennæ entirely dark; forehead almost impunctate; elytra chestnut brown, dark brown, or blackish B. *FEMORALIS*, *Gyll*.
- b*. Thorax shallowly and sparingly punctured.
- a†. Thorax evidently transverse; form longer and broader; elytra rather deeply punctured B. *OPACUS*, *Block*.
- b†. Thorax scarcely transverse (often reddish); form shorter and narrower; elytra very finely punctured B. *ATRICAPILLUS*, *Germ*.
- II. Thorax without central furrow, but with a smooth and usually somewhat raised longitudinal dorsal line.
- i. Thorax strongly punctured with posterior angles obtusely rounded.

1. Elytra about as long as thorax, bright red . . . *B. CRASSICOLLIS, Lac.*
2. Elytra considerably longer than thorax, yellowish-testaceous, with the disc more or less broadly darker, often entirely dark except margins . . . *B. DISSIMILIS, Er.*
- ii. Thorax finely punctured with posterior angles right angles, somewhat projecting *B. ERRATICUS, Er.*

B. taurus, Germ. Elongate, subparallel, moderately convex, black, or black with elytra (except scutellary region) testaceous, front parts rather dull, hind body shiny, upper surface clothed with fine and not very close pubescence; head shagreened, smoother in front, with a strong anterior border, with a very large and strong horn on each side in male, and a distinct prominence in female; antennæ short, gradually thickened, pitchy red, first joint elongate, penultimate joints transverse, the last short oval; thorax transverse and armed with a very long horn in male furnished at the end with long hairs or setæ, rather longer and without horn in female, anterior angles prominent and raised more so in male than in female, shield-shaped, almost truncate before and behind and abruptly narrowed and contracted from posterior third to base, finely channelled, shallowly and sparingly punctured, and finely shagreened; elytra a little longer than thorax rather finely although distinctly punctured; hind body shining, obsoletely and thickly shagreened and punctured; legs pitchy or pitchy red with tarsi, and often tibiæ, lighter. L. 6-7 mm.

The sexual differences of the hind body in this and many other species of *Bledius* are not striking, the seventh ventral segment of hind body being more or less deeply sinuate at apex with the central lobe of the sinuation more or less produced, more so, as a rule, in the female than in the male; the chief sexual differences lie of course in the head.

On or near the coast; rare; Wells and other localities in Norfolk; Ireland, North Bull and Howth, near Dublin: the type variety of this insect, which has the elytra entirely black, appears to be very rare in Britain; I have only seen it in Mr. Rye's collection, now in the possession of Mr. Mason.

B. spectabilis, Kr. (*tricornis*, Fauv., *nec* Herbst.). In general appearance this species much resembles the preceding, and does not need a separate detailed description; it may, however, be easily known by the following characters: the clypeus is not furnished with a raised border in front; the horns on the head are very much smaller and shorter, and the thoracic horn is longer and sharper not tufted with hairs at the end and channelled for its whole length; the thorax is less truncate in front and less abruptly narrowed behind, and the anterior angles are rounded and not prominent; the punctuation of the thorax is rather deeper and more distinct; the elytra are of a bright red colour with the scutellary region darker, and the hind tibiæ are furnished at base with one spine only instead of four as in *B. taurus*. L. 6-7 mm.

Salt marshes and sandy and clayey places near the coast; usually in the clayey banks of brackish pools; often in flood refuse, &c.; local, but common where it occurs;

Gravesend; Sheerness; Harwich; Essex Coast; Deal; Pegwell Bay; Dover; Isle of Wight; Weymouth; Portland; Bournemouth; Dawlish; Lancashire Coast; Scotland, maritime, very local, Solway and Forth districts.

B. tricornis, Herbst. (*nuchicornis*, Rey). This species is very closely related to the preceding, and by some authors has been confounded with it; it is, however, smaller, and is easily distinguished by the shorter and less conspicuous thoracic horn, and by the shape and sculpture of the thorax, which has the sides more rounded and less abruptly contracted behind, and the punctuation much more regular, and uninterrupted by raised smooth spaces on disc as in *B. spectabilis*; occasionally there are one or two of these spaces near the middle; the elytra are of a more yellowish-red or testaceous colour, and as a rule are more infuscate around scutellum and near suture; these latter are also a little more closely punctured, and the apex of hind body is rather lighter. L. 6 mm.

Salt marshes, burrowing beneath stones, in the banks of pools, &c.; very local, but common where it occurs; Sheerness (J. J. Walker, in profusion); Sandgate; Lowestoft; Deal; Hastings; Littlehampton; Lymington; Shoreham; Exmouth Warren; Hunstanton; Manchester and Lancaster district; Cleethorpes, Lincolnshire; not recorded from further north; Ireland, North Bull Sands, Dublin.

B. unicornis, Germ. (*monoceros*, Rosh.). One of the smallest of our species, rather narrow and convex, black or pitch-black with the elytra black, pitchy, or occasionally testaceous; head subtriangular, together with eyes as broad as or broader than thorax, with a prominence on each side which is more raised in male than in female, very finely shagreened; antennæ short ferruginous or red with apex usually darker; thorax as long as broad, armed in front with a long sharp horn in male, which is usually reddish at apex, very finely channelled, shagreened, and besides rather strongly, although shallowly, punctured, sides subparallel strongly narrowed behind; elytra scarcely longer than thorax, rather strongly and thickly punctured; hind body very finely shagreened, and sparingly and obsoletely punctured at sides; legs pitchy, reddish or testaceous, with femora darker. L. $3\frac{1}{2}$ –4 mm.

Found under the same circumstances as the preceding; very local, but common where it occurs; Chobham; Hastings; Shoreham; Lymington; Cowes; Portland; Weymouth; Exmouth Warren; Dawlish; Teignmouth; Hunstanton; Manchester district.

B. bicornis, Germ. (*Ruddii*, Steph. (?), *dama*, Mots., *Elbidus bicornis*, Muls. et Rey). This species is exceedingly closely allied to *B. taurus*, of which it has been considered a small variety or race by many authors; in almost all points of colour, shape, and sculpture it bears a close resemblance to that species; it may, however, be at once known by its smaller size, and the absence of the thoracic and frontal horns in the male, the latter being replaced by two short horn-like prominences (which are present but smaller in the female), and the former being entirely

wanting; the anterior angles of the thorax are less prominent and the posterior tibiæ have only one conspicuous spine at base. L. $5-5\frac{1}{2}$ mm.

Found under the same circumstances as the preceding; very local and apparently scarce; Deal; Pegwell Bay; Harwich; Cleethorpes; Manchester district.

This species is considered by some authors to be identical with the *B. Ruddii* of Stephens, which was so named by him from specimens taken by the Rev. G. T. Rudd in "Coatham Marshes, Yorkshire;" Stephens' figure, however (Illust. vol. v., plate xxvii., f. 3), represents an insect with a distinct thoracic horn, so that it cannot be identical with *B. bicornis*, and is probably merely a small variety of *B. taurus*; the specimens standing under *B. Ruddii* in Dr. Power's and other old collections must be referred to *B. bicornis*.

B. arenarius, Payk. (*Hesperophilus arenarius*, Thoms.). Black rather shining, front parts clothed with close greyish pubescence, with the elytra very pale testaceous, the suture and scutellary region being more or less broadly black; occasionally the whole upper surface of the elytra is black with the posterior angles only testaceous; head subtriangular, evidently narrower than thorax, obsoletely shagreened; antennæ short, rather slender with a distinct three-jointed club, reddish testaceous, with the first joint dark, and the club infusate; thorax strongly transverse, one and a half times as broad as long, almost truncate in front, with sides subparallel and rather strongly contracted behind, finely channelled, and very finely and obsoletely shagreened, and besides rather finely and thickly punctured; elytra much longer than thorax very finely and thickly punctured; hind body almost impunctate; legs pitchy testaceous or pitchy red with the femora darker and the tarsi lighter. L. $3-3\frac{3}{4}$ mm.

Damp sandy places near the coast; in profusion where it occurs, and rather widely distributed; Portland; Weymouth; Hayling Island; Devonshire; Bridlington, Yorkshire; Cleethorpes; Lancashire Coast; Northumberland Coast; Whitby Sands, in plenty; Scotland, very local, Forth district; Ireland, Baldoye and Portmarnock.

B. pallipes, Grav. (*terebrans*, Schiödde, *rastellus*, Thoms., *Blediodes pallipes*, Muls. et Rey, sub-gen. *Astycops*, Thoms., *teste* H. R. W.). Entirely black, clothed with fine and not close greyish pubescence; head a little narrower than thorax; antennæ short, somewhat thickened towards apex, but comparatively slender, entirely reddish testaceous, or more or less darkened towards apex; thorax evidently transverse, truncate at apex, with sides rounded, and contracted and slightly sinuated before posterior angles, which are well marked and project in a minute tooth, finely channelled, very finely shagreened, and besides diffusely and shallowly punctured; elytra about one and a third times longer than thorax, thickly and rather deeply punctured; hind body finely shagreened and obsoletely punctured; legs testaceous, femora sometimes a little darker. L. $3\frac{1}{2}-4$ mm.

Banks of rivers, &c.; local, but abundant where it occurs; it appears to be mistaken occasionally for *B. subterraneus*. Wimbleton; banks of Bollin, Cheshire; Tewkesbury, banks of the Severn (where I have taken it in great profusion by throwing up water against the clay banks); Manchester district; Scarborough; Lancaster; Scotland, riparial, local, Solway district.

B. fuscipes, Rye (*pallipes*, Fauv., *pallipes*, Grav., ♀ H. R. W.). Closely allied to the preceding, and chiefly distinguished from it by its darker legs which are fuscous or fusco-testaceous, and stouter antennæ which are more thickened at apex, and also by its somewhat shorter elytra; the forehead also is less even; from *B. subterraneus* it differs by its shorter elytra, less prominent posterior angles of thorax, and the lesser spinosity of the outer edge of the anterior tibiæ, as well as by the much more transverse apical joints of the antennæ; according to Mr. Rye (in his description, Ent. Monthly Mag. ii. 155) the structure of the antennæ separates the species from any of its allies, "the basal joint being clear testaceous, the second more or less pitchy, longer and much stouter than the third, which, with the rest, is pitchy black; the fourth shorter than the third; the fifth, sixth, and seventh gradually getting wider, and the eighth, ninth, and tenth widening towards the apex, and exceedingly transverse, the apical joint being suddenly blunt, wide, and about half as long again as the penultimate." L. $3\frac{1}{2}$ mm.

A maritime species, found in damp sandy places near or not far from the coast; Liverpool district, Crosby, Wallasey, and Hightown; Scotland, very local, Forth district, where it was first taken in large numbers in June, 1864, by Mr. Rye and Dr. Sharp on the borders of the Firth of Forth, near Aberlady; according to Mr. Kidson Taylor (Ent. Monthly Mag. vii. 10) they usually occur in pairs, one, probably the female, being at the bottom of a downcast burrow, about one and a half inches deep, and the other in a short transverse burrow, close to the mouth; the casts resemble those of the larger horned *Bledius*, being in little heaps, and not like the sinuous galleries of *B. subterraneus*, &c., which are always near the surface.

There is still considerable difference of opinion regarding this species, as many authors consider it identical with *B. pallipes*, and to be either a variety or the female of that insect; it cannot possibly be the latter as it occurs in numbers without *B. pallipes*, and the shape of its antennæ seems to separate it specifically, as well as its habits; my Tewkesbury specimens, however (named for me as *B. pallipes* by M. Brisout), seem to be somewhat intermediate between the two forms or species.

B. subterraneus, Er. (*pallipes*, Thoms. nec Grav., *rastellus*, Schiödte nec Thoms., *Astycops subterraneus*, Muls. et Rey). Very closely allied to the two preceding species by its general appearance, sculpture, &c., but separated sub-generically from them by Mulsant and Rey by reason of its more slender mandibles and bilobed labrum; from both it may easily be distinguished by its much longer elytra which are nearly twice as long as the thorax; the differences between this species and *B. fuscipes* have been pointed out above; it appears to be more closely related to *B. pallipes* than to the latter insect, but besides the

distinctions just mentioned, it has the head and thorax a little duller, and the punctuation of the latter rather finer and closer, and there are a few other minor points of difference. L. $3\frac{1}{2}$ –4 mm.

Sandy banks of ponds and rivers; local; rare in the London district, and apparently not found in the south; Peckham; Maidstone; commoner in the Midlands, Newton Solney, near Repton, Bewdley, Matlock, &c.; Cromer; Yorkshire, banks of Derwent and Scarborough; Liverpool, banks of Mersey; Cheshire, banks of Bollin; Manchester; Northumberland district, general; Scotland, common, Solway, Clyde, Tweed, Forth, Moray, and Shetland districts, and probably universally distributed.

B. longulus, Er. (*Blediodes longulus*, Muls. et Rey). Shining black, with the elytra bright red or reddish-testaceous, clothed with fine, diffuse, greyish pubescence; head evidently narrower than thorax, obsoletely shagreened, eyes rather large; antennæ short, somewhat thickened, red, with the middle sometimes darker, penultimate joints rather strongly transverse; thorax about as long as broad, truncate at apex, with sides rounded and rather strongly contracted behind, slightly sinuate just before base and terminating at the posterior angles in a minute and blunt but evident tooth, finely channelled, obsoletely shagreened and besides strongly and diffusely punctured; elytra a little longer than thorax, rather thickly and strongly punctured; hind body almost smooth; legs entirely reddish-testaceous. L. 3 mm.

In sandpits, sandy places on cliffs, near streams, &c.; found both inland and near the coast; not common; Shirley, Charlton, West Wickham, Maidstone; Southend; Lowestoft; Isle of Wight, Luccombe Chine; Scalby Beck, Yorkshire; Northumberland district, banks of the Irthing, and rather plentifully towards the north end of Whitley Sands.

B. fracticornis, Payk. (*alpestris*, Heer.). Larger than the preceding, black with the elytra entirely reddish-testaceous, or more or less dark, sometimes entirely black; these latter specimens may be distinguished from the other black species by the much stronger punctuation of the thorax; the apex of hind body is always light; from *B. longulus* it may be distinguished by its size, the very obtuse or entirely rounded posterior angles of thorax which present no trace of a tooth, by the more closely and shallowly punctured thorax, and the duller and more plainly sculptured hind body; from *B. opacus* it may be at once known by its shorter elytra, and the much stronger punctuation of the thorax, which is scarcely shagreened or almost smooth between the punctures, whereas in that species the whole surface is very plainly shagreened and the punctuation is diffuse and very shallow. L. 4 mm.

Male with the sixth ventral segment broadly sinuate on apical margin, with the sinuation filled with membrane and furnished on each side with some long hairs bending inwards, seventh slightly bisinuate.

Sandy banks of ponds and rivers; local and, as a rule, not common; Reigate, Mickleham, Chobham, Notting Hill, Charlton, Brentford, Tunbridge Wells; Bewdley Forest; Repton; Scarborough; Manchester, and Liverpool districts; Scotland, very rare, Solway district, "Dumfries, W. Lennon."

B. femoralis, Gyll. (*Blediodes femoralis*, Muls. et Rey). A little smaller and more linear than *B. fracticornis*, with the antennæ entirely dark, and their third joint a little shorter in comparison to the second; the head is a little broader in proportion to the thorax, which is a little narrower and less transverse; the forehead is almost impunctate; the posterior angles of the thorax are a little less obliquely rounded, and its punctuation is slightly feebler and less close; the male has the sixth ventral segment as in the preceding species, except that the long hairs are replaced by a little spine on each side. L. $3\frac{1}{2}$ mm.

This species has only been taken by Mr. G. R. Waterhouse; Mr. C. O. Waterhouse writes to me regarding it as follows:—"There are some fifteen specimens of *B. femoralis* in my father's collection, but without locality, evidently marked by himself and similar to other *Bledii* in his collection; they belong to a period about 1850, before he marked localities;" Mr. Waterhouse has kindly sent me one of these; in this specimen the base of the antennæ is evidently lighter than the rest, so that this character may not always be reliable.

B. opacus, Block (*Blediodes opacus*, Muls. et Rey). Black, with the elytra reddish-testaceous, the suture and scutellary region being more or less infusate, head and thorax dull; head a little narrower than thorax, very finely shagreened; antennæ short, testaceous with apex infusate, or dark with base testaceous, penultimate joints strongly transverse; thorax a little broader than long, with posterior angles very obtuse, almost rounded, finely channelled, distinctly shagreened, and diffusely and very shallowly punctured (a point which, as above mentioned, will easily separate the species from *B. fracticornis*); elytra evidently longer than thorax, rather strongly and thickly punctured; hind body shining black with apex often pitchy red, almost smooth or very finely shagreened; legs testaceous or reddish-testaceous. L. $3\frac{1}{2}$ –4 mm.

Sandy coasts and banks of rivers; not common; Charlton; Richmond; Shipley, near Horsham; Lowestoft; Hastings; Eastbourne; Brighton; Weymouth; Hayling Island; Isle of Wight; Hunstanton (where I took a series on the sandhills in 1879); Burton; Scarborough; Scotland, rare, Solway, and Tweed districts; Ireland, near Belfast.

B. atricapillus, Germ. (*Blediodes atricapillus*, Muls. et Rey). This is one of the smallest of our species; it very closely resembles a male *B. opacus*, and hardly requires a separate description; apart, however, from its length it may be distinguished by the following characters; it is narrower and more linear; the thorax is a little longer, and is more finely and thickly punctured, and often of a pitchy-reddish colour; it also has the posterior angles more obtuse and rounded; the third joint of the antennæ is relatively smaller; the elytra are more finely punctured, and the posterior tibiæ are more sparingly setose; from *B. longulus*, which it much resembles in size and general appearance, it may be easily distinguished by its longer and more finely punctured elytra, and by the

much finer punctuation and obtusely-rounded posterior angles of the thorax. L. $2\frac{1}{2}$ –3 mm.

In sandpits, on sandy cliffs near the coast, &c.; very local, but sometimes common where it occurs; Strood and Upnor, Kent (in profusion, J. J. Walker); Wells, Norfolk; Lowestoft; Southend; Isle of Wight, Luccombe Chine, &c.; Scotland, rare, Solway district, "near Dumfries, W. Lennon;" Ireland, Killiney, near Dublin.

B. crassicollis, Lac., *filum*. Heer. (*Blediodes crassicollis*, Muls. et Rey). Shining black with the elytra bright red or chestnut-red with the scutellary region sometimes a little darkened; head nearly as broad as thorax, very finely shagreened, with an obsolete fovea on vertex; antennæ rather short, red; thorax about as long as broad, truncate at apex, with sides subparallel until posterior third where they are strongly narrowed to base, posterior angles blunt, but not rounded,* upper surface rather strongly and thickly punctured, with the interstices of the punctures scarcely shagreened, with no central channel but in its place a smooth slightly raised line; elytra only a little longer than thorax, rather strongly and thickly punctured; hind body evidently widened behind, very finely shagreened, and also punctured at the sides; legs reddish-testaceous L. $3\frac{1}{2}$ mm.

Male with the sixth ventral segment of hind body broadly sinuate on apical margin, the sinuation being filled with membrane, and furnished on each side with a short stout projecting tooth.

Sandy places near the coast; very local; has only hitherto occurred near Deal (Walmer, &c., Power and C. G. Hall); it is rather rare, although widely distributed in France, and is by no means an exclusively maritime species, appearing rather to frequent hilly and woody localities where it is found on the banks of streams, marshes, &c.

B. dissimilis, Er. (*Blediodes dissimilis*, Muls. et Rey). Shining black with the elytra chestnut-red, or reddish-testaceous, with the suture more or less broadly dark; head nearly as broad as thorax, very finely shagreened, antennæ short, reddish-testaceous, lighter at base, penultimate joints transverse; thorax as broad or very slightly broader than long, truncate at apex, with sides not quite so parallel as in *B. crassicollis* and more rounded behind, posterior angles almost if not quite rounded, upper surface with central channel replaced by a smooth and somewhat raised line, rather strongly and thickly punctured, with the interstices rather plainly shagreened under a high magnifying power; elytra considerably longer than thorax, rather strongly and thickly punctured; hind body widened behind, shining black with apex reddish, very finely shagreened, and obsoletely punctured at sides; legs reddish-testaceous, with the posterior coxæ sometimes darker. L. $3\frac{1}{2}$ – $3\frac{3}{4}$ mm.

* This character is a somewhat difficult one to perceive, although an important one in the Bledii: with regard to this particular species I agree with Rey; Erichson says of the posterior angles, *fortement arrondis*, Lacordaire *assez arrondis*, Kraatz *très obtus*, Fauvel *obtus*.

Male with the sixth ventral segment of hind body broadly sinuate, the sinuation being filled with membrane, and furnished on each side with a long fine and sharp projecting spine; these are plainly visible from above, and the species may be easily known by their presence; Rey, in his figure (Brévipennes, 1879, Oxyteliens, Pl. iv.), represents these species as directed outwards at apex: in all the specimens I have examined they are directed inwards.

In the summer of 1878 I took two or three specimens of this insect on the side of a sandy and clayey cliff near Bridlington, Yorkshire; they were in company with a *Dyschirius* very like *D. angustatus*, but apparently only small *D. politus*; these specimens were named for me *Bledius erraticus*, and as such I had the species for a long time in my collection; afterwards, however, it appeared that they had very little in common with *B. erraticus*, being quite distinct by the much stronger sculpture of the thorax and elytra, while their longer elytra separated them from *B. crassicollis*; they at last proved to be the species now described. In the summer of 1884 I found the species in profusion at Bridlington, together with its larva and pupa: it burrows in the clay cliffs and its casts are very conspicuous on their sides if searched for from a few feet above high-water mark, almost to their top; these are the cliffs in the crevices of which *Nebria livida* occurs commonly; I never found the insect running on the level sand like *Bledius arenarius*, which also occurs in profusion at Bridlington; it always required digging for, and appeared almost invariably to frequent clay.

V. nigricans, Er. In this variety the elytra are almost or entirely black; it occurs with the ordinary form.

This species appears to bear a close relation to *B. cribricollis*, Heer., but may be distinguished by the elytra being testaceous or less brightly red, by the rather closer punctuation of the thorax (the interstices between the punctures being more evidently shagreened), and somewhat shorter antennæ; the long spines on the sixth ventral segment of hind body in male will distinguish the species from all its allies.

B. erraticus, Er. (*Blediodes erraticus*, Muls. et Rey). Black with the elytra red or chestnut-red with the suture more or less broadly darker; head very finely shagreened; antennæ short, red with the base lighter, penultimate joints transverse; thorax broader than long, parallel-sided, strongly narrowed behind, sinuate just before posterior angles, which are subrectangular and furnished with a minute prominent tooth, central line replaced by a smooth space, upper surface finely but distinctly shagreened, and besides sparingly and rather obsoletely punctured; elytra evidently longer than thorax, rather finely punctured; hind body very slightly widened behind, very finely shagreened, shining black with apex reddish; legs reddish-testaceous. L. $3\frac{1}{2}$ – $3\frac{3}{4}$ mm.

Male with the sixth ventral segment of hind body simple, the seventh slightly bisinuate.

The much finer sculpture and minutely, although distinctly, toothed posterior angles of thorax, as well as the absence of spines on the sixth ventral segment of hind body in male, will separate this species from both the preceding; the smooth central line on thorax will distinguish it from all our other species.

Sandy banks of streams, &c.; Northumberland district, rare; “beneath stones in the bed of the Irthing, when the water was low, at St. Mary’s Holme, near Lanercost” (Bold). Mr. Theodore Wood records it from West Wickham, near London; I know of no other locality.

PLATYSTETHUS, Mannerheim.

This genus comprises between thirty and forty species, which occur chiefly in temperate or cold climates, although some are recorded from South Africa, India, Cuba, &c.; they much resemble *Oxytelus* in general appearance, but are, as a rule, more shining, and may be at once distinguished by the single very distinct longitudinal furrow on centre of thorax, all the *Oxyteli* having three furrows which are, as a rule, more or less irregular or obsolete: there are five British species of *Platystethus*; the first two of these are considerably larger insects than the other three, but this character cannot always be depended upon, as they are extremely variable in size.

The larva of *P. morsitans (arenarius)* has been described and figured by Bouché, Westwood, and Schiödte: it is rather convex and subcylindrical, smooth, shining, and linear, with the abdomen slightly dilated to the sixth segment, and then narrowed; the colour is white with the head yellowish, and all the segments except the prothorax are marked at base with two black spots; the head is narrower than the prothorax, which is larger than the succeeding segments; the ocelli are two in number; the antennæ and legs are short; the cerci are very short, with the first joint not marked, and the anal appendage is short, thick, and clavate, and furnished at apex with exsertile wart-like appendages. The pupa is of the ordinary shape, and has the “styli motorii” distributed over the disc of body and thorax, as well as at the sides and apex of the thoracic region; the abdominal region terminates in two short cerci. (v. Schiödte, Part II., p. 120, 121, Pl. xi. 18, xii. 3.)

- I. Head plainly contracted at base; second joint of antennæ short and rather dilated; male without spines on each side of forehead **P. ARENARIUS, Fourc.**
- II. Head not contracted at base; second joint of antennæ longer, not dilated.
 - i. Elytra dull, finely shagreened between punctures; forehead of male with a sharp projecting spine on each side; size larger **P. CORNUTUS, Gyll.**
 - ii. Elytra shiny, not shagreened between punctures; forehead of male without projecting spines in front; size smaller.
 - 1. Head, thorax, and elytra very strongly and coarsely punctured; form somewhat contracted in middle; hind body widened behind **P. CAPITO, Heer.**
 - 2. Head, thorax, and elytra moderately or sparingly punctured; form subparallel; hind body not or scarcely widened behind.

- A. Punctuation stronger and less sparing; scutellum with a distinct furrow on each side at base; third joint of antennæ a little shorter than second . . . *P. NODIFRONS*, *Sahlb.*
 B. Punctuation finer and more sparing; scutellum bifoveolate at base; third joint of antennæ much shorter than second *P. NITENS*, *Sahlb.*

P. arenarius, Fourc. (*morsitans*, Payk., *Pyctocrærus morsitans*, Thoms.). Rather depressed, smooth and shining, with strong outstanding setæ at sides, black, with the disc of elytra more or less distinctly reddish; head variable, as broad as or even broader than thorax in male, narrower in female, depressed and finely shagreened in front, strongly punctured behind, vertex with a strong furrow in centre; antennæ rather short, pitchy black or black with penultimate joints rather separated, transverse; thorax transverse, not much narrowed behind, the basal margin being almost as broad as the apical, deeply furrowed along central line, rather finely and moderately punctured on disc, much more strongly and thickly at sides, where the punctuation is often rugose or even longitudinally striate; elytra short, transverse, about as long as thorax, rather strongly and moderately closely punctured; hind body finely shagreened; legs pitchy testaceous, with tibiæ paler than femora, and tarsi very light. L. $2-3\frac{1}{2}$ mm.

Male with the seventh ventral segment produced in a plate in middle, with a long sharp straight spine on each side.

In haystack refuse, moss, dung-heaps, &c.; common and generally distributed throughout the kingdom as far north as the Shetland Islands.

P. cornutus, Gyll. (*maxillosus*, Peyr.). In general appearance this species much resembles the preceding, but it is rather duller owing to the spaces between the punctures of the front parts being very finely shagreened; the head is not contracted at base and is armed in front with two long and sharp projecting spines; the thorax is evidently more narrowed behind, so that the basal margin is narrower than the apical, and the punctuation of thorax and elytra is much finer; the elytra, moreover, are finely bordered at apex. L. $2-3\frac{1}{2}$ mm.

Male with the seventh ventral segment of hind body impressed, the impression being terminated on each side by two sharp teeth which are bent inwards, sixth segment either broadly emarginate, or narrowly and angularly excised in middle of apex: both this and the preceding species appear to vary considerably as regards the male characters. According to Mulsant and Rey the seventh ventral segment is deeply and angularly emarginate at apex, in *P. morsitans*, while Erichson says it is triangularly produced; the fact appears to be that both are right, the produced plate seeming as if it were distinct from the emargination, beyond which it projects.

Damp margins of ponds, &c.; also sometimes in hotbeds; generally distributed and common in the London district and the south; not so common in the Midlands; occurs in the Manchester district, but is not recorded at all from the extreme northern counties, or from Scotland; Ireland, Waterford and Galway.

P. capito, Heer. (*pilosellus*, Wank.). Shining black, rather narrower in middle; head broader or narrower according to sex, rather convex and smooth before antennæ, strongly and rather thickly punctured behind, more coarsely at sides, vertex with a rather indistinct central furrow; antennæ long, black, with penultimate joints more or less transverse according to sex; thorax evidently broader than long, plainly contracted behind, very strongly and coarsely punctured, the punctures at sides being setigerous, with distinct central furrow; elytra transverse, hardly as long as thorax, strongly punctured; hind body narrower at base than elytra, considerably widened behind, almost smooth or very finely shagreened; legs pitchy, or pitchy-testaceous, with tarsi, and sometimes tibiae, lighter. L. $2\frac{1}{2}$ –3 mm.

Male with the seventh ventral segment of hind body broadly depressed, and furnished with a small spine on each side of the depression.

In haystack refuse, dung-heaps, &c.; often in sandpits; local; London district, not uncommon, Darenth Wood, Sheerness, Chatham, Cobham, Sevenoaks, Shirley, Walton-on-Thames, Reigate, Dulwich, Bearsted, Sanderstead, Croydon; Folkestone; Dover; apparently not recorded from any other districts.

P. nodifrons, Sahlb. This species may at once be distinguished from the preceding by the much finer punctuation of the thorax and elytra; the head is usually strongly striate on the internal border of the eyes, but this character does not appear always to hold good; the antennæ are rather shorter in proportion than in *P. capito*, with the penultimate joints somewhat more strongly transverse; the elytra are slightly longer in proportion to thorax, and the hind body is subparallel and not much widened behind; the legs are lighter in colour; in the male the seventh ventral segment of hind body is furnished with two keels in middle. L. $2\frac{1}{2}$ – $2\frac{3}{4}$ mm.

In haystack, flood, and vegetable refuse; local, but apparently more widely distributed than the preceding; London district, not uncommon, Sheerness, Gravesend, Chatham, Forest Hill, Walton-on-Thames, Highgate, Greenwich, Tonbridge, Birdbrook; Isle of Wight; Portland; Littleington, Sussex; Bedford; Whittlesea Mere; Tewkesbury.

P. nitens, Sahlb. (*striatulus*, Heer.). Very closely allied to the preceding, with which it has been considered identical by some authors, but distinguished by its smaller size (which point, however, is not of much value in this genus), the more diffuse punctuation of the head, thorax, and elytra, the structure of the scutellum, and the characters of the seventh ventral segment of the hind body, which is impressed and bounded on each side of the impression by a keel which projects beyond apex in a spine, and is flanked outside by a short, small, and indistinct tooth. L. $1\frac{1}{2}$ –2 mm.

In haystack refuse, under loose bark, &c.; rare; Forest Hill, Brockley, Highgate, Croydon, Lee, Waddon (Surrey); Dagenham; Isle of Wight; Salford Priors; Tewkesbury: it appears rather to frequent chalky places; it has been recorded from Tain, Ross-shire, N.B., but this may be in error. Superficially this species appears to be difficult to distinguish from the preceding, and to be often confounded with it.

OXYTELUS, Gravenhorst.

This genus at present comprises about 150 species which are very widely distributed throughout the world, ranging from the Arctic Regions, Northern Europe and Asia to Southern Africa, Ceylon, South America, and the Australian region; they are, however, chiefly found north of the equator; they vary very much in size but have a facies almost peculiar to themselves, which is in great measure due to the shape and sculpture of the thorax and elytra, the former being furnished with three more or less large and distinct longitudinal furrows on disc, of which the outer ones are sometimes more or less obsolete, but are usually traceable; the *Oxyteli* are sluggish in their movements and are usually found in dung-heaps, vegetable refuse, at roots of grass, &c.; there are about thirty European species, of which about half are found in Britain; some of these require considerable care in determination, and it is rather hard to distinguish them by descriptions, although on comparison with authentic types their differences are at once apparent.

Several larvæ of different species of *Oxytelus* have been described by different authors: that of *O. sculptus* is described and figured by Chapuis and Candéze (Cat. des Larves des Coléoptères, p. 60, pl. ii. fig. 2); it is subcylindrical, rather stout, and linear, covered with long soft yellow hairs; the colour is yellowish-white with the apex of the mandibles, and the cerci, brown, and the dorsal scuta greenish-brown; the head is rounded, a little wider than prothorax, which is longer than any of the succeeding segments; the antennæ and legs are short; the last segment of the abdomen is terminated by a short anal appendage and two cerci, of which the first joint is much longer and stouter than the second.

The other larvæ of the genus that have been described appear to be very closely related to the one just described, and to one another, and seem to differ chiefly in colour, relative length of joints of cerci, and other minor points.

I. Sides of thorax more or less notched or crenulate.

- i. Last joint of posterior tarsi much longer than the two others united; elytra and thorax thickly and moderately strongly punctured.

1. Elytra usually black; forehead depressed; form broader
2. Elytra bright red; forehead not depressed; form narrower, elongate

O. RUGOSUS, *F.*

O. INSECATUS, *Grav.*

- ii. Last joint of posterior tarsi about equal to the other two together; thorax and elytra very coarsely punctured; upper surface shining black.

O. FULVIPES, *Er.*

II. Sides of thorax not crenulate.

- i. Elytra furnished with an impressed stria on sides, forming a raised ridge at the edge of upper surface; hind body with distinct outstanding bristles; elytra red or reddish.

1. Antennæ elongate with penultimate joints not transverse; eyes very prominent; head triangular
2. Antennæ rather short with penultimate joints transverse; eyes not very prominent; head transverse in male, subtriangular in female.

O. SCULPTUS, *Grav.*

- A. Forehead with three longitudinal furrows (sometimes not very distinctly marked);

- last joint of maxillary palpi shorter than penultimate *O. LAQUEATUS, Marsh.*
- B. Forehead with one longitudinal central furrow; last joint of maxillary palpi as long as or longer than penultimate *O. PICEUS, L.*
- ii. Elytra without impressed stria and ridge at sides; hind body without distinct outstanding bristles; elytra usually black or pitchy.
1. Head, thorax, and elytra shining.
- A. Antennæ black or blackish.
- a. Forehead somewhat convex, very smooth; vertex of head not or only indistinctly foveolate; upper surface black, very shiny *O. INUSTUS, Grav.*
- b. Forehead depressed; vertex of head distinctly foveolate.
- a*. Length $3\frac{1}{2}$ –4 mm.; elytra unicolorous black or dark brown; upper surface moderately shiny *O. SCULPTURATUS, Grav.*
- b*. Length $2\frac{1}{2}$ mm.; elytra with disc reddish; upper surface very shiny *O. NITIDULUS, Grav.*
- B. Antennæ reddish; elytra black or testaceous. *O. MARITIMUS, Thoms.*
2. Head, thorax, and elytra (except sometimes front of head) dull.
- A. Length 3 mm.; forehead quite dull *O. COMPLANATUS, Er.*
- B. Length $1\frac{1}{2}$ –2 mm.
- a. Head dull with clypeus very shiny; elytra longer; antennæ more slender *O. CLYPEONITENS, Pand.*
- b. Head dull with the antennal projections and two little spots on vertex more shiny; elytra shorter; antennæ stouter *O. SPECULIFRONS, Kr.*
(*nec Rye*).
- c. Head entirely dull.
- a*. Anterior tibiæ entire *O. TETRACARINATUS, Block.*
- b*. Anterior tibiæ emarginate at apex *O. FAIRMAIREI, Pand.*

O. rugosus, Grav. Depressed, somewhat parallel-sided, black, rather shining with hind body duller; head considerably broader in male than in female, with a dull depressed space before eyes which is finely shagreened, hinder part shining and punctured; antennæ rather short, dark with the first four joints pitchy red, penultimate joints scarcely transverse; thorax transverse, thickly and rather strongly punctured, rounded and narrowed behind, with the central furrow distinct in front, and the side ones more distinct behind; elytra transverse a little longer than thorax, depressed, rugosely punctured, the punctuation forming three or four striæ at sides; hind body nearly as broad as elytra, very finely punctured; legs variable, lighter or darker pitchy red. L. 4–5 mm.

Male with seventh ventral segment of hind body deeply bisinuate on apical margin, the central lobe being prolonged almost to a level with the lateral ones, sixth segment with three or four obsolete small teeth in middle of margin, fifth and sometimes fourth and third with a rather strong tubercle at apex; in the female, as is the case with almost all the

other species, the seventh ventral segment is bisinuate, the central lobe being prolonged beyond the sides, and projecting in an obtuse angle.

In dung, decaying seaweed, haystack and vegetable refuse, at roots of grass, &c.; very common, and generally distributed throughout the greater part of the kingdom; it has been recorded as local from Dublin.

V. terrestris, Lac. (*Oxytelus pulcher*, Grav., *terrestris*, Lac.). In this variety the thorax is lighter or darker pitchy brown, and the antennæ and elytra red; it occurs with the type in the London district and elsewhere, but is much less common.

O. insecatus, Grav. Narrower and more elongate than *O. rugosus*, shining black, with the elytra bright red, the scutellary region being a little darkened; the thorax is often more or less distinctly pitchy red; although this species at first sight seems perfectly different to the preceding, yet it rather closely resembles small specimens of the *var. terrestris*; doubtful specimens, however, may be distinguished by having the forehead more convex and shining and not shagreened, by the elytra being a little shorter, and the second and third joints of antennæ a little less elongate. L. $3\frac{3}{4}$ –4 mm.

Male characters of seventh ventral segment of hind body very much as in the preceding; sixth segment furnished at apex with two shining red granules placed near one another in centre, and also with a tubercle at base.

In dung, haystack refuse, seaweed, &c.; often by sweeping; rather local, but widely distributed from Lincolnshire and Lancashire southwards; it has not however been recorded from the northern counties; Darent, Faversham, Chatham, Sheerness, Peckham, Mickleham, Shirley, Tonbridge, &c.; St. Peter's, Kent (in decaying seed potatoes); Hastings, Isle of Wight, Portsmouth, Devonshire and southern counties generally; Midland counties, general; Lincoln (one specimen on a doorstep); Liverpool; it is a species that never seems to occur abundantly, and can by no means be called common.

O. fulvipes, Er. Allied to *O. rugosus* but of a deeper and much more shining black colour, and shorter and proportionately broader in form; the distinct and rather coarse punctuation of the forehead, and the much coarser punctuation of the thorax and elytra will at once distinguish it; the thorax is shorter in proportion and has the sides more obsoletely crenulate, and the first joint of the posterior tarsi is more elongate; the legs are clear testaceous-yellow; in the male the central lobe of the bisinuate emargination of the seventh ventral segment is itself subemarginate at apex. L. 4 mm.

Under dead leaves, &c.; very local; first discovered by Mr. Gorham at Needwood, near Burton-on-Trent, and afterwards taken in the same locality by Mr. Harris, Mr. Champion and others, by the side of a pond, and almost in the water; Mr. Blatch has subsequently found it in numbers at Sutton Park, Birmingham, and Mr. A. C. Horner has recently taken it at Tonbridge.

O. sculptus, Grav. (*longicornis*, Mannh., *Epomotylus sculptus*, Thoms.). Pitchy black, with the thorax sometimes pitchy red, and the

elytra reddish or reddish-brown; head distinctly triangular, with very prominent eyes, depressed and dull in front and punctured behind, with a distinct furrow in centre of vertex; antennæ elongate, as long as head and thorax united, slightly thickened towards apex, with the penultimate joints not transverse, black, with the first three joints red; thorax transverse, not strongly narrowed behind, with the usual three furrows strongly marked, rather strongly punctured; elytra transverse, evidently longer than thorax, with a distinct raised line at sides, rather finely and thickly punctured; hind body almost impunctate, with strong outstanding setæ, a little lighter at apex; legs testaceous. L. $3\frac{1}{2}$ mm.

Male characters very peculiar, the seventh ventral segment being furnished with two deep incisions; the space between these is as long as the lateral lobes of the segment, and is longitudinally impressed, and dilated at the apex, which is slightly emarginate.

In dung, vegetable refuse, &c.; common and generally distributed throughout the kingdom.

This is one of our most distinct species and may at once be known by its very triangular head and elongate antennæ.

O. laqueatus, Marsh (*piceus*, Sahlb. nec. L., *luteipennis*, Er., *plagiatus*, Mots. *Tanycrærus luteipennis*, Thoms.). More shining than the preceding, with the elytra more brightly reddish-testaceous; head large, as broad as thorax and transverse in male, narrower than thorax and subtriangular in female, with forehead much depressed especially in male; vertex with three more or less distinctly marked longitudinal furrows; antennæ rather short, dark, with testaceous base, penultimate joints rather separated, transverse; thorax more strongly transverse than in *O. sculptus*; elytra with punctuation a little more distinct and less rugose; hind body scarcely visibly punctured or shagreened in front, punctuation sometimes more evident behind; legs testaceous. L. 4 mm.

Male with the seventh ventral segment of hind body deeply bisinuate, the central lobe narrow and projecting beyond lateral lobes, sixth feebly sinuate with a depression before sinuation which is bounded on each side by a small reddish tubercle.

In dung, haystack refuse, moss, &c.; generally distributed and common throughout the kingdom.

O. piceus, L. Extremely like the preceding in general appearance, and very liable to be confounded with it; it is on the average a little larger, and may be distinguished by its head which has only one longitudinal groove on centre of vertex, and is also more punctured in front, with the frontal space less concave and depressed, and the clypeus not so acute at the angles; the last joint of the maxillary palpi is about as long as, or even longer than, the penultimate, instead of shorter as in *O. laqueatus*; the eyes also are larger than in that species; the male

characters are very different and hard to describe; the seventh ventral segment is deeply and doubly incised, the space between the incisions being a little shorter than the lateral lobes, much broader than the corresponding space in *O. laqueatus*, and feebly tricuspid at apex; the lateral lobes are prolonged and acuminate; the sixth segment is bisinuate with the median lobe broad, slightly prolonged, and emarginate at apex. L. $4-4\frac{1}{2}$ mm.

In dung, flood refuse, &c.; apparently very rare in England, but most probably much commoner than it appears to be; Birchwood (Mr. Waterhouse, one specimen in cowdung, in the field opposite the inn); Snodland, Kent, and Barnes Common (Dr. Power and Mr. Rye): the species appears to be considered common in France, Germany, and Sweden.

O. inustus, Grav. (*maxillosus*, Sperk. *Anotylus inustus*, Thoms.). Shining black; head much larger in male than in female, forehead somewhat convex, very smooth, vertex only indistinctly foveolate; antennæ short, gradually thickened towards apex, entirely black, with joints 6-10 strongly transverse; thorax variable in length, more or less transverse, sometimes fully twice as broad as long, with the central furrow more marked than the other two, rugosely and rather thickly punctured at sides, more sparingly on disc; elytra transverse, scarcely longer than thorax, rather finely and thickly punctured, with the punctuation forming longitudinal rugosities, especially at sides; hind body very finely punctured; legs lighter or darker testaceous, with femora darker. L. $3-3\frac{3}{4}$ mm.

Male with the seventh ventral segment of hind body broadly and deeply sinuate, with the centre of sinuation slightly produced, sixth segment with two tubercles in centre of apex.

In dung, dead leaves, hotbeds, decaying seaweed, &c.; common and generally distributed in the London district and the south; rarer in the Midlands and further north, and not recorded from the extreme north of England, or from Scotland.

According to Mulsant and Rey, the small males of this species have the head shaped as in the female, a peculiarity found also in other species; it is very variable in size.

O. sculpturatus, Grav. (*flavipes*, Lac., *montivagus*, Heer. *Anotylus sculpturatus*, Thoms.). Very closely allied to the preceding and often confounded with it; it is however a little larger and broader, and evidently less shining; the front of the head is more depressed, and is less shining owing to being finely shagreened, and the vertex is more distinctly foveolate; the forehead, at least in the female, is bordered at the sides towards the eyes, whereas in *O. inustus* it is not bordered in either sex; the antennæ are perhaps a little stouter, but this is not a very evident character; the male characters are very much the same as in the preceding species, except that the impressed space before the tubercles on the sixth ventral segment is rather plainer and smoother. L. $3\frac{3}{4}-4$ mm.

In dung, vegetable refuse, dead leaves, at sap of freshly-cut trees, &c.; very common and generally distributed throughout the kingdom as far north as the Shetland Islands.

O. maritimus, Thoms. (*Perrisi*, Fauv., *oceanus*, Fauv. *Anotylus maritimus*, Thoms.). This species rather closely resembles *O. sculpturatus*, but is smaller, and may easily be distinguished by its entirely red antennæ; the head is more or less large, sparingly punctured, with two broad impressions on the forehead and a furrow or fovea in centre of vertex; the forehead is obsoletely bordered at sides towards eyes; the elytra are sometimes black, sometimes reddish, and occasionally pale testaceous; in the male the seventh ventral segment is deeply bisinuate, with the central and lateral lobes all rounded at apex, and the sixth segment is quite truncate, and furnished in centre of apical margin with two rather distinct and projecting tubercles. L. $3-3\frac{1}{4}$ mm.

A maritime species, found in decaying seaweed and refuse on the shore; Isle of Wight and South Coast, rather common; Ventnor, Hayling Island, Portland, Whitsand Bay, Plymouth, &c.; Liverpool district, Wallasey, &c.; Hartlepool; Northumberland district, abundant (Bold); Scotland, local, Tweed and Forth districts; it probably occurs on all the coasts of England, but appears to be more common in the north and south. The variety with testaceous elytra has occurred in some numbers in Scotland, but seems to be very local.

O. nitidulus, Grav. (*Anotylus nitidulus*, Thoms.). A small, narrow linear species, shining black, with the disc of elytra pitchy red; head as broad as thorax in male, narrower in female, depressed, almost smooth and shining in front, rather thickly punctured behind; antennæ short, black, with joints 6-10 strongly transverse; thorax transverse, rather strongly and thickly punctured, with the central furrow distinct, and the side ones more or less obsolete; elytra longer than thorax, finely and thickly punctured, the punctuation forming longitudinal lines; hind body very finely and sparingly punctured; legs testaceous with the middle and posterior femora sometimes darker. L. $2\frac{1}{2}$ mm.

Male with the seventh ventral segment of hind body simply and broadly emarginate.

In dung, decaying vegetable refuse, seaweed, &c.; common and generally distributed throughout the kingdom.

The small size of this species will at once distinguish it from all the others in which the front parts are shining, and its shining appearance will separate it from all those that follow, which have the front parts dull.

O. complanatus, Er. (*Anotylus complanatus*, Thoms.). Rather broad in proportion as compared with its allies, dull black, with the hind body more shining; head more or less broad, according to sex, dull, with the antennal projections alone shining, finely shagreened; antennæ short, black, thickened towards apex, joints 6-10 evidently transverse; thorax short, almost twice as broad as long, very finely and thickly punctured,

the punctuation for the most part taking the form of fine longitudinal striæ, with the three dorsal furrows, especially the middle one, rather plainly marked; elytra a little longer than thorax and sculptured after the same fashion, black or brownish; hind body finely and rather thickly punctured; legs testaceous, with the femora a little darker. L. $2\frac{3}{4}$ –3 mm.

Male with the seventh ventral segment of hind body deeply, and feebly bisinuate, emarginate, sixth furnished in middle of apical margin with two large projecting tubercles (often reddish), which are bounded by a semicircular ridge behind.

In dung, hotbeds, decaying fungi, &c.; often on the coast under seaweed. London district, common; Pegwell Bay, Hastings, Dover, Devonshire, and south coast generally; Tewkesbury, Birmingham district, Repton, and other Midland localities; Liverpool; Northumberland district; Scotland, not common, Solway, Forth, and Clyde districts; it apparently becomes rarer towards the north. I have no record from Ireland, but have no doubt that it occurs in that country.

O. clypeonitens, Pand. (*speculifrons*, Rye, nec Kr. *Anotylus clypeonitens*, Thoms.). Dull black, with the hind body more shining, and the elytra often brownish; head more or less broad according to sex, dull black, with the antennal projections and the whole space between them smooth and very shining, middle of vertex with a fovea or longitudinal furrow; antennæ moderate, thickened towards apex, black, penultimate joints transverse; thorax transverse, very finely and thickly sculptured, central furrow very narrow and well marked, external furrows broad; elytra much longer than thorax, very finely sculptured with longitudinal striæ; hind body very finely punctured; legs testaceous. L. 2 mm.

Male with the seventh ventral segment of hind body broadly and rather feebly bisinuate, with the centre of the emargination slightly produced, and furnished with a depression before apex, which is bounded by a semicircular ridge.

In dung, dead leaves, decaying fungi, &c.; rare; Sheerness, Shirley, Putney, Mickleham, Tonbridge, Hampstead, Hammersmith, Plumstead; Repton, Burton-on-Trent; Wallasey sandhills, Cheshire.

This species is easily distinguished from *O. tetracarinatus* by the shining front part of the head, lighter coloured elytra, and pale testaceous legs.

O. speculifrons, Kr. (*Anotylus speculifrons*, Thoms.). This species closely resembles the preceding, but may be distinguished by the head, which is dull, with the antennal projections, and two small spaces on vertex, near one another, more smooth and shining; the third joint of the antennæ is a little longer, and the elytra are darker, and shorter in proportion to thorax; the seventh ventral segment of hind body is more distinctly bisinuate, with the central lobe more produced; the sixth segment has no tubercles on apical margins. L. 2 mm.

I have only seen a single specimen of this species, which is in Dr. Power's collection, and has no locality attached; it appears to be a maritime species.

O. tetracarinatus, Block (*depressus*, Grav., *pusillus*, Mannh., *opacus*, Steph. *Anotylus depressus*, Thoms.). Dull black, with the hind body more shining; narrow and linear; head transverse, differing in size according to sex, entirely dull, very finely shagreened; antennæ moderate, black, joints 6–10 strongly transverse; thorax one and a half times as broad as long, very finely shagreened longitudinally, with the usual three furrows more or less obsolete, the central one plainer than the others; elytra transverse, a little longer than thorax, very finely and thickly shagreened longitudinally; hind body finely and rather thickly punctured; legs lighter or darker testaceous, with femora and coxæ more or less infusate. L. 2 mm.

Male with the seventh ventral segment of hind body bisinuate and plainly granulate before central lobe; sixth finely granulate in middle.

In dung, haystack refuse, decaying seaweed, &c.; very common and generally distributed throughout the kingdom.

O. Fairmairei, Pand. (*Anotylus Fairmairei*, Thoms.). Allied to the preceding, but easily distinguished by having the anterior tibiae excavated at apex, and the elytra much longer than thorax; the legs, moreover, are dark with the knees and tarsi reddish-testaceous; in the male the seventh ventral segment of hind body is deeply and broadly emarginate, without any central lobe, and the sixth segment is furnished with two longitudinal tubercles or carinæ near middle of apex: in size the species is exceedingly small. L. $1\frac{1}{2}$ mm.

In moss, rotten wood, &c.; very rare, but perhaps sometimes confused with the preceding; found by Dr. Sharp sparingly in several localities; Scotland, Dee district.

HAPLODERUS, Stephens.

This genus contains about half a dozen species from Europe and North America; our single species is very like an *Oxytelus*, but may be at once distinguished by having two distinct central furrows in middle of disc, instead of a distinct central furrow and two more or less obsolete on each side of it, as in the latter genus.

H. cœlatus, Grav. Somewhat parallel, black, rather shining, with the elytra pitchy brown; head larger or smaller according to sex, often raised in front in male, sparingly and obsoletely punctured; antennæ long, black, with the base of the first two or three joints pitchy red, penultimate joints about as broad as long; thorax strongly transverse, rounded at sides, coarsely and sparingly punctured, with two broad furrows on centre of disc, separated by a smooth interval; elytra evidently longer

than thorax, rather strongly and thickly punctured; legs testaceous. L. 4 mm.

Male with the seventh ventral segment of hind body deeply emarginate, the emargination being feebly bisinuate with the central lobe hardly marked.

In dung, vegetable refuse, at roots of grass, in marshy places, &c.; common and widely distributed from the Midlands southwards; rarer further north; Bold mentions it as a rare hill insect only met with on the western borders of the Northumberland and Durham district; Scotland, Lowlands, rare, Forth and Tay districts.

ANCYROPHORUS, Kraatz (*Oethephilus*, Rey).

This genus comprises about a dozen species from Europe, North America, and Central Asia; they are rather peculiar in appearance owing to their very long depressed elytra, which are much broader than the thorax; the tarsi are all 3-jointed; our two British species are very local, and are found at the sides of streams, or in damp moss in or near running streams and waterfalls; when disturbed they fold themselves into an S and remain motionless; the sexual characters are unimportant, the seventh ventral segment being slightly rounded or subemarginate at apex in male and feebly bisinuate in female.

- I. Form smaller and more slender; antennæ not much longer than head and thorax, with joints 4-6 subtransverse **A. OMALINUS**, Er.
- II. Form larger and more robust; antennæ much longer than head and thorax, with joints 4-6 longer than broad **A. AUREUS**, Fauv.

A. omalinus, Er. (*venustulus*, Rosh., *præpositus*, Rey, *procerulus*, Epp.). Elongate, subparallel, rather depressed, black, more or less shining, with the elytra more or less brown or pitchy-red; head subtriangular, almost as broad as thorax, with two deep furrows; antennæ moderately long, blackish with base lighter, slightly thickened towards apex; thorax subtransverse, much narrower than elytra, finely and hardly visibly punctured with two furrows on disc divided by a smooth central line, which forms with the base, which is somewhat raised, an anchor-shaped elevation; elytra much longer than broad, about three times as long as thorax, finely and thickly punctured; hind body finely and not thickly punctured; legs reddish-testaceous. L. 3 mm.

On the sides of streams, &c., in damp moss; very local; Sawley, Lancashire (first taken as British in this locality by Dr. Power); Bewdley, banks of Severn; Clifton; Scarborough; Northumberland district, banks of Irthing and Wansbeck; Scotland, common, Solway and probably other districts; Ireland, Bray, co. Wicklow.

A. aureus, Fauv. (*longipennis*, Wat., &c., *nec* Fairm.). Larger and more robust than the preceding, and evidently duller, with the antennæ much longer, and stouter, with the joints more elongate; the elytra are a little more distinctly punctured, and the legs are, as a rule, of a clearer testaceous colour; this species differs from *O. longipennis*, Fairm., to which it has usually been referred, by being a little larger and broader, with the

pubescence of the hind body rather finer and more golden, and the punctuation of the head and thorax a little less fine and less close, and of the elytra somewhat stronger; the pubescence of the elytra also is more golden and rather less thick than in *A. longipennis*, and the antennæ are a little lighter. L. $3\frac{3}{4}$ –4 mm.

On the sides of streams and waterfalls, in damp moss; very local; Tonbridge; Scarborough; Northumberland district, banks of Irthing, taken abundantly at Yetholm by Mr. Crotch; Scotland, not common, Solway, Tweed, and Forth districts.

TROGOPHLÆUS, Mannerheim.

This genus comprises, as at present constituted, rather more than one hundred described species, and is probably one of the most extensive of all the genera of Staphylinidæ; about a third of these species are found in Europe, and the rest are widely distributed over the surface of the globe, representatives occurring in Siberia, India, Ceylon, Cuba, North America,* Brazil (Amazon districts), New Guinea, Australia, &c.; there are eleven British species, omitting *T. spinicollis*, Rye, which rests on a single specimen found near Manchester and was probably an importation; some of these are extremely closely allied and hard to determine; they are for the most part very small and insignificant-looking insects, and are slow in their movements; their usual habitat is in muddy places near streams and ponds, where they hollow out for themselves small galleries; they are therefore found abundantly, as a rule, in flood refuse; they often occur, however, in haystack and vegetable refuse, hotbeds, &c., especially in damp places; their form is linear and parallel; the scutellum is quite hidden; the thorax is quite level in some cases, but is almost always furnished with more or less distinct furrows or foveæ on disc; the following table of the species may be found of some service, but they are very hard to tabulate satisfactorily; the species are divided by Thomson, Mannerheim, Rey, and others into three genera, *Carpalimus*, *Trogophlæus*, and *Tænosoma*, according to the sculpture of the thorax and the relative length of the second and third joints of the antennæ; although this latter character is on the whole a useful one, yet it is rather confusing in certain cases, as may be proved by the fact that Rey places *T. fuliginosus* under *Trogophlæus verus*, whereas Thomson places it under *Tænosoma*; if however, we take out this latter species, which is very easily distinguishable by other characters, the distinction will be found to be in most cases an easily recognized one.

- I. Thorax marked at base with a strong crescent-shaped furrow; third joint of antennæ about equal in length to second; length 3 mm. (Sub-Gen. *Carpalimus*, Steph.) T. ARCUATUS, Steph.

* Leconte mentions fifty species, mostly undescribed, from America, north of Mexico.

- II. Thorax without crescent-shaped furrow at base, its disc, as a rule, furnished with two longitudinal furrows, which are sometimes obsolete, and occasionally wanting.
- i. Third joint of antennæ a little shorter than second; joints 5-7 oblong; length $2\frac{1}{2}$ -3 mm.
 1. Elytra more strongly punctured; sides of thorax evidently rugose and duller; average size larger *T. BILINEATUS*, Steph. (nec Er.).
 2. Elytra more finely punctured; sides of thorax not or very slightly rugose and not duller; average size smaller *T. RIVULARIS*, Mots.
 - ii. Third joint of antennæ somewhat variable, but usually about half as long as second; joints 5-7 as long as broad; head much narrower than thorax which is not visibly foveolate on disc; legs clear testaceous; length $2-2\frac{1}{2}$ mm. *T. FULIGINOSUS*, Grav.
 - iii. Third joint of antennæ much shorter than second (the latter being about three times longer than the former); joints 5-7 always transverse.
 1. Antennæ black, with at most the first joint pitchy brown or pitchy red.
 - A. Legs, except knees, tarsi, and trochanters, black; elytra rather strongly and thickly punctured; length $1\frac{1}{2}$ mm. *T. FOVEOLATUS*, Sahlb.
 - B. Legs pitchy or pitchy testaceous, with femora darker; elytra finely punctured.
 - a. Head and thorax plainly punctured, the latter with dorsal furrows distinctly traceable; length $1\frac{3}{4}$ -2 mm. *T. CORTICINUS*, Grav.
 - b. Head and thorax very finely shagreened, the latter without dorsal furrows, but indistinctly foveolate at base. L. $1\frac{1}{2}$ mm. *T. HALOPHILUS*, Kies.
 2. Antennæ dark with base more or less broadly reddish or reddish-testaceous.
 - A. Elytra about as long as, or slightly longer than, thorax, the latter with two obsolete dorsal furrows, legs red or pitchy red; length 2 mm. *T. ELONGATULUS*, Er.
 - B. Elytra much longer than thorax; legs clear testaceous; length not exceeding $1\frac{1}{2}$ mm.
 - a. Thorax distinctly transverse; dorsal furrows rather distinct, divided, taking the form of four shallow depressions *T. PUSILLUS*, Grav.
 - b. Thorax not transverse, as long as broad; dorsal furrows as in the preceding, but very indistinct. *T. TENELLUS*, Er.
 3. Antennæ entirely testaceous; thorax not transverse; form extremely narrow and linear *T. SUBTILIS*, Er.

The sexual characters of the genus do not require particular mention; in *T. arcuatus* the seventh ventral segment of hind body is very narrowly and angularly emarginate in middle of apical margin; in the other species the same segment is feebly bisinuate or almost truncate, the central portion being more or less, but always slightly, advanced.

T. arcuatus, Steph. (*scrobiculatus*, Er., *Carpalimus arcuatus*, Steph.). Rather broad and depressed, black, somewhat shining, clothed

with rather close and fine greyish pubescence ; head somewhat triangular, contracted behind, distinctly narrower than thorax, thickly punctured ; antennæ moderately long, blackish or brownish, with first joint pitchy red ; thorax transverse, subcordiform, with sides strongly and somewhat angularly rounded in front and contracted behind, thickly punctured, with a distinct crescent-shaped impression along base, and two more or less plain oblique foveæ on disc ; elytra broad, much wider than base of thorax, closely and rather strongly punctured ; hind body narrower than elytra, subparallel until near apex, where it is narrowed, finely and thickly punctured ; legs pitchy brown, with the tarsi and sometimes the knees, lighter. L. 3 mm.

In moss, flood refuse, at roots of grass, &c., on the banks of ponds and rivers ; not common ; Hammersmith ; Tonbridge ; Knowle, near Birmingham (on submerged logs in the river Blythe (Blatch)) ; Repton ; Scarborough ; Northumberland district, Warrington (Power), banks of streams very rare (Bold) ; Scotland, local, Solway and Tweed districts ; Ireland, Bray, co. Wicklow.

T. bilineatus, Steph. (*nec* Er.) (*riparius*, Lac., *suspectus*, Rey). This species much resembles the preceding in general appearance ; it may however, be easily distinguished by the absence of the crescent-shaped furrow at the base of thorax, which is less angularly rounded in middle, the lighter base of the antennæ, and narrower elytra, which are somewhat longer in proportion ; the antennæ are rather longer and more slender, dark with the first two or three joints red, or occasionally ferruginous with the base lighter, third joint a little shorter than second, joints 4-7 oblong in the male, and suboblong in the female ; the elytra are clothed with distinct and rather close pubescence, and are rather strongly punctured ; the legs are reddish-testaceous with the posterior coxæ darker. L. $2\frac{1}{2}$ -3 mm.

Marshy places, in flood refuse, at roots of grass, &c. ; common and generally distributed throughout England and Scotland as far north as the Moray district, and probably common in Ireland.

In immature specimens the elytra and antennæ are entirely reddish ; I have a specimen, which appears to be mature, in which one antenna is dark with red base, and the other entirely red.

T. rivularis, Mots. (*bilineatus*, Er., *nec* Steph., *Erichsoni*, Sharp). Very like the preceding, and often confounded with it ; it is, however, on the average, rather smaller, with the thorax not rugose or duller at the sides as is the case with the preceding species ; the sides of the thorax are more rounded in front, and the elytra are evidently more finely punctured ; this latter character is perhaps the most satisfactory, some of the others being only slightly apparent ; the dorsal furrows are often interrupted, so as almost to form four separate foveæ ; the legs are reddish with the femora sometimes darker. L. $2\frac{1}{2}$ - $2\frac{3}{4}$ mm.

Under the same conditions as the preceding, but much less common ; Dulwich,

Darenth, Norwood, Birdbrook, Chatham, Sheerness, Whitstable, Merton, Forest Hill, Mickleham, Egham, Tonbridge; Bewdley Forest; Knowle; Repton; Manchester; Ireland, Waterford (Power).

T. elongatulus, Er. (*Tænosoma elongatula*, Thoms.). This species very much resembles superficially a small and narrow example of the preceding; linear, rather dull black, clothed with thick ashy pubescence; head subtriangular, about as broad as thorax, narrowed behind, thickly and rugosely shagreened; antennæ rather short, dark, with first joint red, third joint much shorter than second, fifth subtransverse, fourth moderately, 6–8 strongly transverse; thorax transverse, subcordiform, rounded in front and narrowed behind, very finely, thickly, and rugosely shagreened with dorsal furrows somewhat obsolete; elytra slightly longer than thorax, finely and very thickly punctured; hind body very finely and thickly punctured, base of segments almost smooth; legs reddish, with the coxæ and femora darker. L. 2 mm.

Marshy places, at roots of grass, &c.; common and generally distributed in the Midlands and the London and southern districts; rarer further north; Northumberland district, amongst algæ on the sea-coast, rare (Bold); Scotland, Lowlands, Forth and Solway districts.

T. fuliginosus, Grav. (*Tænosoma fuliginosa*, Thoms.). Black, moderately shining, with the elytra usually brownish, clothed with very fine, thick, and close ashy pubescence; head and thorax very finely shagreened, the former much narrower than thorax, the latter transverse strongly rounded and dilated in front, and much narrowed behind, with two more or less obsolete foveæ at base, but with the disc smooth and even; antennæ moderate, reddish with the apical joints darker, third joint about half the length of second, fourth joint subtransverse, 5–7 as long as broad in male, almost as long as broad in female, penultimate joints transverse; elytra evidently longer than thorax, very finely and thickly punctured; hind body narrower than elytra, very slightly wider behind, extremely finely punctured or shagreened; legs testaceous, with the coxæ, and occasionally posterior femora, a little darker. L. 2–2½ mm.

Damp and marshy places; under dead leaves, in moss, flood refuse, &c.; also by sweeping herbage; local and not common; Wandsworth, Sheerness, Mickleham, Faversham, Tonbridge; Hastings; Norfolk; Suffolk; Devonshire; Bristol; Salford Priors; Repton; Liverpool; Northumberland district, rare, banks of Till; Scotland, Lowlands, rare, Tweed and Solway districts.

T. foveolatus, Sahlb. (*Tænosoma foveolata*, Thoms.). Of a shorter and broader form than any of the allied species; deep black, with very fine and indistinct pubescence; head transverse, nearly as broad as thorax, rather strongly impressed in front, finely shagreened; antennæ rather short, black, with third joint much shorter than second, thickened towards apex; thorax strongly transverse, subcordiform, finely shagreened, with four more or less obsolete foveæ on disc; elytra plainly longer than thorax, rather strongly and thickly punctured; hind body short and broad, finely,

and rather thickly punctured; legs black, knees, tarsi, and trochanters testaceous. L. $1\frac{1}{2}$ mm.

Salt marshes, on the mud, in flood refuse, &c.; rare; Whitstable and Sheerness (Champion); also inland, Darenth Wood and Bewdley Forest (Blatch).

T. corticinus, Grav. (*Tænosoma corticina*, Thoms.). More elongate and linear than the preceding, with the elytra more finely punctured, and the dorsal furrows more distinct and not divided into foveæ; the legs also are lighter; black, rather shining, with very fine and rather sparing ashy pubescence; head hardly narrower than thorax, very finely and thickly punctured; antennæ rather short, black, with first joint rarely lighter, third joint much shorter than second, fifth distinctly longer and thicker than fourth and sixth, 8-11 broad; thorax transverse, not strongly narrowed behind, very finely and thickly punctured, with the dorsal furrows distinct; elytra evidently longer than thorax, thickly and finely but distinctly punctured; hind body slightly wider behind, very thickly and obsoletely punctured; legs pitchy with tarsi, and more or less of tibiæ, testaceous. L. $1\frac{3}{4}$ -2 mm.

Marshy places, at roots of grass, on mud, &c.; also found in dry localities; generally distributed and common in the London district; apparently less common further north; Wicken Fen; Knowle; Bewdley Forest; Salford Priors; Repton; Scarborough; Manchester; Lincoln; Northumberland district; Scotland, Lowlands, Solway district.

T. halophilus, Kies. (*Tænosoma halophila*, Thoms.). This species is allied to the preceding, but is considerably smaller, and may easily be distinguished by the sculpture of the thorax, which has the centre of disc smooth or almost smooth, and the base furnished with two shallow and more or less obsolete foveæ, which are sometimes united; the head and thorax are very finely shagreened and not punctured as in *T. corticinus*, and the elytra are more finely punctured. L. $1\frac{1}{3}$ - $1\frac{1}{2}$ mm.

Salt marshes, in flood refuse, &c.; rare; Sheerness, Rochester, Chatham; Southsea; Lymington; Weymouth; also inland, Hopwas Wood, Tamworth (Blatch) and Lincoln.

T. pusillus, Grav. (*Tænosoma pusilla*, Thoms.). Narrow and linear, dull black, with the elytra reddish-brown, clothed with fine and thick ashy pubescence; head about as broad as thorax, distinctly impressed in front, very finely and thickly shagreened; antennæ moderate, dark red, with one or two joints at base testaceous, third joint much shorter than second, last three joints larger than the rest; thorax distinctly transverse, moderately narrowed behind, very thickly and hardly visibly punctured, with four depressions on disc, which are more or less distinct; elytra much longer than thorax, very finely and thickly punctured; hind body almost as broad as elytra, black with apex lighter, very finely shagreened. L. $1\frac{1}{2}$ mm.

Marshy places, in flood refuse, &c., and by sweeping; also common in hotbeds and dungheaps in some localities. Chatham, Whitstable, Sheerness, Caterham, Mickle

ham, Dulwich, Kingsgate, &c.; Deal, Hastings, and southern districts generally; Devonshire; Bewdley Forest; Burton-on-Trent; Cheshire; Northumberland district; Scotland, not common, Solway, Tweed, Forth, and Dee districts; Ireland, near Dublin; it appears to be somewhat local, and to be rarer in the north, but it occurs in large numbers when found, and is usually considered the commonest species of the genus.

T. tenellus, Er. (*gracilis*, Mannh., *Tænosoma tenella*, Thoms.). Narrower and more linear than the preceding, which it closely resembles in appearance, but easily distinguished by the shape of the thorax, which is as long as broad, and subquadrate; the dorsal furrows also are less marked and less interrupted; the elytra are distinctly narrower and longer and the hind body is more elongate. L. $1\frac{1}{3}$ mm.

Marshy places, in flood refuse, &c.; rare; first taken by Mr. Waterhouse at Kingsbury Reservoir; Colney Hatch; Mickleham; Esher; Darenth Wood; Small-heath and Knowle, Birmingham; Scotland, rare, Solway district.

T. subtilis, Er. (*Tænosoma subtilis*, Thoms.). More slender and linear than any other species of the genus; it is closely allied to the preceding but has the antennæ entirely testaceous and the thorax longer and more distinctly narrowed towards base; there seems, however, to be some variation in the shape of the thorax in these small species, and the colour of the antennæ is somewhat deceptive. Thomson speaks of a variety of *T. tenellus* with the antennæ entirely testaceous. L. $1\frac{1}{3}$ mm.

This species appears to have been introduced by Mr. Crotch, but I can find no record of any locality for it: in Dr. Power's collection, however, there are doubtful specimens from Birdbrook and Cowley which appear to belong to it, as also do the specimens from Eltham which are placed under *T. tenellus*.

(**T. spinicollis**, Rye. A single specimen of this curious insect was taken by Mr. J. Kidson Taylor of Manchester under flood refuse by the river Mersey on August 9th, 1868; it is black with the first joint of the antennæ, the thorax, elytra, and legs, rufo-piceous; the thorax is transverse, scarcely cordiform, with an impression on each side behind, and the anterior angles produced into a short but evident spine, coarsely punctured; the elytra are double as broad and more than twice as long as thorax, very coarsely and almost rugosely punctured; the hind body is black, shining, very delicately and at the apex widely punctured; it is of the same size as *T. arcuatus*, and is in some ways allied to that species, but differs widely from it in several particulars; no further specimen has occurred, and it is very probable that it was an importation.)

THINOBIVS, Kiesenwetter.

There are about twenty-six species at present comprised in this genus, of which thirteen are European, and the rest occur in Siberia and North

America with the exception of two, which are found, like many other of the forms of the Northern Hemisphere, in Chili; they are very minute insects, usually less than 2 mm. in length, and live on the banks of streams in the damp sand, often almost in the water; they are rapid in their movements; all our species are rare, and one or two of them extremely so; it is however very probable that they are often passed over owing to their minute size, and inconspicuous appearance; the sexual differences appear to be imperfectly known and of little importance. Dr. Sharp proposes to separate *Thinobius* and its allies from the *Oxytelinæ* on the ground that "they possess a different structure of the prothoracic side pieces and of the front coxæ, making some approach in these respects to the sub-family *Aleocharinæ*."

- I. Head quadrangular, as broad as thorax; eyes smaller and situated further from neck; form more elongate and linear. (*Thinophilus*, Rey.)
 - i. Size larger (2 mm.); body pitch-black with elytra dark pitchy brown; fourth joint of antennæ smaller than those on each side of it T. MAJOR, Kr.
 - ii. Size smaller (less than 2 mm.); body pitchy brown with elytra fusco-testaceous.
 1. Antennæ longer and more slender, with fifth joint longer than those on each side of it, distinctly longer than broad, joints 7-8 subequal a little longer than broad; head and thorax less thickly punctured and pubescent, more shiny T. LINEARIS, Kr.
 2. Antennæ shorter and rather stouter with joints 4-8 subequal, about as long as broad; head more thickly punctured and pubescent, dull T. BRUNNEIPENNIS, Kr.
- II. Head somewhat rounded, or subtriangular, narrower than thorax; eyes larger and situated nearer to neck; form less elongate and linear. (*Thinobius*, i. sp.)
 1. Elytra brownish; antennæ longer, with joints 5-7 about as long as broad T. LONGIPENNIS, Heer.
 2. Elytra and whole upper surface deep black; antennæ shorter, with joints 5-7 distinctly transverse T. BREVIPENNIS, Kies.

T. major, Kr. (*Thinophilus major*, Rey). Elongate, linear, depressed, pitch-black, rather shining, with the elytra a little lighter; clothed with very fine greyish pubescence; whole upper surface very finely and thickly punctured; head about as broad as thorax, subquadrate; antennæ pitchy, rather long, third joint short, subglobose, fourth smaller than those on each side of it, 9-10 broader than the preceding, eleventh oval-oblong; thorax strongly transverse, truncate at apex, with the anterior angles right angles, rounded at sides and behind; elytra depressed, twice as long as thorax, more obsoletely punctured than head and thorax; hind body elongate, almost as broad as base of elytra, with sixth segment sinuate on apical margin and furnished with a pale membrane, and the seventh slightly emarginate; legs pitchy testaceous, with femora darker. L. 2 mm.

Very rare; Scotland, Tay district; taken by Mr. Crotch on the shores of Loch

Rannoch ; it appears to be very rare on the Continent, as Kraatz, its describer, knew only of two examples ; it is the largest species of the genus at present known.

T. linearis, Kr. (*longicornis*, J. Sahlb., *luteipennis*, Rey ? *Thinophilus linearis*, Rey). Much smaller than the preceding, pitchy brown, with the elytra lighter, clothed with very fine and close greyish pubescence ; head as broad as thorax, with two very distinct furrows in front, transversely subquadrate ; punctuation of head and thorax very fine, thick, and obsolete ; antennæ moderately long, thickened towards apex, testaceous, with the apex sometimes a little darker, joints 5–8 varying somewhat in size ; thorax strongly transverse, almost truncate in front and rounded behind ; elytra almost twice as long as thorax, very finely and thickly punctured ; hind body elongate, almost as broad at base as elytra, very thickly punctured, shining at apex, sixth segment slightly sinuate ; legs testaceous with the femora sometimes slightly darker. L. $1\frac{1}{2}$ mm.

In sand on the banks of rivers, streams, and lochs ; rare ; Scarborough (Wilkinson) ; Scotland, scarce, Solway, Forth, and Tay districts ; Dr. Sharp has found it in company with *Homalota subtilissima*, to which it bears a great superficial resemblance.

T. brunneipennis, Kr. (sub-gen. *Thinophilus*, Rey). Very closely allied to the preceding, but a little broader, with the head and thorax more thickly punctured and pubescent and so duller ; the general colour, moreover, is darker, and the posterior femora are more often darker ; the antennæ are rather shorter and stouter, and have joints 4–8 subequal, and almost as broad as long or subtransverse ; the thorax is more strongly rounded at sides and contracted behind, and the elytra are a little shorter in proportion. L. $1\frac{1}{2}$ mm.

Very rare ; Scotland, Tay district. It was first recorded by Mr. G. Waterhouse as from Scotland, Rev. W. Little's collection (Ent. Ann. 1859, 137).

T. longipennis, Heer. (*ciliatus*, Kies.). This and the next species are easily distinguished from all those that precede by their smaller size, less linear form, and the fact that the head is evidently narrower than thorax, somewhat rounded, or even subtriangular ; this species is dull black, with the elytra brownish, clothed with very fine ashy pubescence ; the whole upper surface is very finely, and scarcely visibly, shagreened ; antennæ slender, dark testaceous or brownish with the basal joints lighter, joints 4–10 at least as long as broad or subtransverse (this difference is probably sexual) ; thorax very strongly transverse, slightly and very broadly emarginate at apex, with the anterior angles almost right angles, rounded, but not much narrowed, behind, without impressions ; elytra more than twice as long as thorax ; hind body a little narrower than elytra, not elongate, sixth segment slightly sinuate in middle of apical margin ; legs lighter or darker testaceous : the general colour, however, of the whole insect is variable and differs considerably according to the localities in which it occurs ; this is especially noticeable in continental specimens. L. 1 mm.

Under stones, in sand and shingle, on the banks of rivers, streams, &c.; local; Scarborough (Lawson); banks of the Skell, near Ripon, in company with *Homalota exilis* and *Actidium concolor* (Waterhouse); Scotland, common, Solway, Tweed, Forth, Tay, and Moray districts; Ireland, Dodder banks, near Dublin; it probably occurs in many localities in the North of England.

T. brevipennis, Kies. This species is allied to the preceding, but may be distinguished easily by its deep black colour, and shorter and stouter antennæ of which the intermediate joints are strongly transverse; the thorax is more strongly rounded at the sides and is furnished with two more or less obsolete oblique depressions at base, separated by a more or less distinctly raised line; the elytra are shorter in proportion; the antennæ and legs are much darker, being very dark, pitchy, or black; the size is on the average rather smaller. L. vix 1 mm.

Has only been found hitherto in the Fen districts; Holme Fen, Hunts (Janson), May, 1859; Quy Fen, Cambridge April 3rd, 1863 (Power and Crotch); Fen districts, in numbers (Crotch).*

SYNTOMIUM, Erichson.

This peculiar genus appears to contain at present only two species, one inhabiting Central and Northern Europe, and the other occurring in Alaska, North America: our species is easily known by its broad and short form, metallic lustre, and very strong punctuation; the tarsi are all five-jointed, the first four joints being short, and the last about as long as the rest taken together; the insect is found in moss in woods and is slow in its movements; it is not uncommon in many localities, but never appears to occur abundantly.

The larva of *S. æneum* is described and figured by Schiödte (Part vii. p. 559, Pl. 1, &c.): it is very short and broad, convex, and capable of rolling itself up into a ball, and much resembles a very minute wood-louse; all the dorsal scuta are complete and are dark-coloured; the head is much narrower than the prothorax, and the antennæ are very short and rather stout; the ocelli are three in number on each side; the prothorax is larger than any of the other segments and is emarginate in front and strongly rounded behind so that it is almost lunate; the body is broadest at the fourth abdominal segment and from thence is narrowed to apex; the anal appendage is short and broad and looks like an extra segment, and the cerci are solid, very short, and only visible from the side as they do not pass the anal appendage; the legs are short. This larva is found in the same habitat as the perfect insect; it is slow in its movements, and avoids danger by rolling itself into a ball and keeping motionless.

S. æneum, Müll. Form short, thick, somewhat convex, of a dark black bronze, or brownish bronze colour, sometimes a little greenish; head much narrower than thorax, strongly and rather thickly punctured; antennæ about as long as head and thorax united, black, with the apex reddish, or entirely reddish, terminating in rather a strongly marked three-jointed club; thorax transverse, much narrower than elytra, very strongly and deeply punctured, with two foveæ at base and a smooth

* This species has been taken this summer (1887) by Mr. Champion in the Isle of Wight; Dr. Sharp has also taken it in the island at Totlands Bay.

raised central line; elytra much broader than long, a little longer than thorax, very strongly, thickly, and somewhat rugosely punctured; hind body short and very broad, almost, if not quite, as broad as elytra, shining, bronze-black, almost smooth, or extremely finely shagreened; legs ferruginous or pitchy red. L. 2 mm.

In moss, or in damp places, especially in woods; occasionally by evening sweeping; local; London district, Caterham, Shirley, Reigate, Esher, Woking, Tonbridge, &c.; Dover; Hastings; New Forest; Oxfordshire; Midland districts, rather common, Bewdley Forest, Birmingham district, Repton, &c.; Liverpool; Manchester; Northumberland district; Scotland, not common, but rather widely distributed, Tweed, Solway, Forth, Dee, and Moray districts; Ireland, Dinnish Island (J. J. Walker).

COPROPHILUS, Kraatz.

This genus comprises about half-a-dozen species (if we exclude the four or five species of the genus *Zonoptilus*, Mots., which is included under it by some authors), of which three occur in Chili, one in Mesopotamia, and one in Europe: our single species is like a large *Oxytelus* in general appearance, but has all the tarsi five-jointed; the strongly striated elytra will at once serve to distinguish it; it is rather slow in its movements, and is often taken on the wing; it occurs commonly on roads and pavements in some localities during the first warm days of spring.

C. striatulus, F. Elongate, rather depressed and parallel-sided, shining black, glabrous; head rather long, narrowed in front, with two very strong impressions, sparingly and unevenly punctured; antennæ rather long, ferruginous or reddish brown, with the apex often a little lighter, penultimate joints scarcely transverse; thorax about as long as broad, with sides slightly rounded and crenulate in front, and slightly sinuate behind before posterior angles, which are rather prominent right angles, sparingly and unevenly punctured, with a strong elongate central fovea and two smaller ones on each side at base; elytra longer than thorax, very strongly and deeply striated longitudinally and punctured, the intervals being smooth, apex finely rugose; hind body narrower than elytra, finely and somewhat asperately punctured in front, almost smooth behind; legs dark pitchy, or pitchy red, with the trochanters and tarsi light red. L. 6–7 mm.

Male with the seventh ventral segment of hind body prolonged and somewhat rounded at apex, female with the same segment distinctly produced in a somewhat rounded angle.

In haystack and vegetable refuse, hotbeds, &c.; generally distributed and rather common throughout the London, southern, and midland districts; Lincoln, common on pavements in early spring, running in the sun, but not found later in the year; rarer further north, Scarborough, Manchester, &c.; Northumberland district, not common; Scotland, Lowlands, scarce, Solway, Tweed, Forth, and Dee districts.

ACROGNATHUS, Erichson.

There appears at present to be only one described species belonging to

this genus; it is scarce on the Continent, and is one of our rarest British insects; it occurs under dead decaying leaves on the edges of stagnant pools, almost, if not quite, in the water.

A. mandibularis, Gyll. Elongate, linear, somewhat depressed, of a dull ferruginous-red colour, with the head black, or pitchy brown, and the thorax often dark pitchy red; the elytra are lighter red, with the apex sometimes a little infusate; head subtriangular, rather strongly and sparingly punctured; antennæ entirely red, rather long, with the last three joints larger than the rest; thorax subquadrate, or slightly longer than broad, considerably narrower than elytra, very slightly and gradually narrowed behind, with posterior angles almost right angles, rather finely and sparingly punctured, with a smooth central line, which is abbreviated in front; elytra considerably longer than thorax, very finely shagreened, and besides finely and rather thickly punctured in irregular rows, with three more or less obsolete raised lines on each; hind body parallel-sided, more shining than elytra, very finely shagreened, smooth and rather shining at apex; legs testaceous-red. L. $5\frac{1}{2}$ –6 mm.

Male with the first ventral segment furnished behind with a tubercle in centre, seventh slightly and obtusely prolonged in middle.

In rotting leaves, on the banks of stagnant ponds, especially in woods; once taken on the wing; very rare; Darenth Wood; Claygate, Surrey; Epping Forest; Tonbridge.

COMPSOCHILUS, Kraatz. (*Planeustomus*, Duval.)

The species belonging to this genus bear a rather close relation to *Acrognathus*, but are widely separated from them by the structure of the tarsi, which are five-jointed in the latter genus, whereas in *Compsochilus* they are all three-jointed; the elytra, moreover, have no border, whereas in *Acrognathus* they are finely bordered at the sides; the genus comprises about a dozen species, which are all found in Europe with the exception of two from Algeria and Morocco: they are slow in their movements and live in woods and damp places; they are said to fly just before twilight.

C. palpalis, Er. Elongate, narrow and linear, testaceous, rather shining, with the head, metasternum, and usually a space before apex of hind body, darker; head subtriangular, very finely shagreened, and rather strongly and sparingly punctured, clypeus smooth and shining, forehead with a slight impression on each side; antennæ testaceous with the five last joints darker; these joints are also larger than the rest, the three last being the largest; thorax a little longer than broad, much narrower than elytra, gradually and slightly narrowed behind, with posterior angles somewhat obtuse, obsoletely shagreened, finely and diffusely punctured at sides, and with two series of punctures on disc, separated by a rather narrow, impunctate, somewhat raised interval;

elytra oblong, considerably longer than thorax, rather finely punctured in more or less distinct rows; hind body elongate, subparallel, almost smooth and impunctate; legs yellow-testaceous. L. 3-4 mm.

Male with the seventh ventral segment of hind body rounded at apex, female with the same segment somewhat angularly rounded.

Banks of ponds and ditches, by sweeping long grass and herbage towards evening; once taken on the wing; very rare; Sheerness (Walker); Tonbridge (Wollaston); * Wandsworth (Waterhouse); Caterham, one example brushed from long grass on the banks of a pond, July, 1875 (Champion). The antennæ are sometimes entirely testaceous, and the head entirely red; the males are generally of a duller red colour, according to Mulsant and Rey, and have the hind body occasionally almost entirely black or brownish, with the exception of the apex.

DELEASTER, Erichson.

This genus seems to form a transition between the *Oxytelinæ* and the *Homaliinæ*, its members bearing a strong superficial resemblance to *Anthophagus*; it only comprises three or four species from Europe, North America, and Southern Abyssinia; they are active in their movements and live under stones, &c., on the banks of ponds and streams; our single species appears to be taken mostly on the wing; the legs are elongate, and the tarsi are all five-jointed.

D. dichrous, Grav. Rather broad and depressed, of a bright testaceous-red colour, with the head black, and the hind body pitchy black, the lateral margins, which are very broad and much raised, and the apex, being brownish or reddish; head subtriangular, broader than thorax, smooth and shining on disc, duller towards base; eyes large and prominent; antennæ long, and somewhat thickened towards apex, ferruginous, with base often lighter, joints 5-10 almost equal in length, oblong; thorax subcordiform, much narrower than elytra, strongly rounded in front and evidently narrowed behind, sparingly, and rather coarsely, but not deeply punctured, with a short channel on centre of disc and a depression before scutellum; elytra about twice as long as thorax, and much broader, finely and thickly punctured, entirely reddish-testaceous; hind body with sides somewhat rounded, evidently, though finely, punctured at sides, disc smooth; legs reddish-testaceous. L. 6-7 mm.

Male with the seventh ventral segment of hind body truncate at apex, and the four first joints of anterior tarsi slightly dilated and furnished with very close-set hairs beneath; in the female the anterior tarsi are simple.

In rotting leaves, under stones, &c.; on the banks of ponds; mostly taken on the wing; not common; Lewisham, Maidstone, Croydon, Caterham, Hammersmith, Colney Hatch, Norwood, Bromley, Bearsted, &c.; Hastings; Salford; Bewdley

* Since the above was written this species has been taken in some small numbers near Tonbridge (June 1887) by Mr. Horner and Mr. Blatch.

Forest; Repton; Buxton; Withington, Cheshire; Scotland, very rare, Solway and Forth districts; Ireland, one specimen, near Dublin (Egan).

V. Leachii, Curt. (*adustus*, Küst.). This variety is a little narrower than the type, especially at the elytra, and the elytra have the whole apex or at least the posterior angles more or less broadly darkened.

This variety sometimes occurs with the type, but as a rule they are found in different localities; Tonbridge; Hythe; Barmouth; Bewdley Forest; Scarborough; Preston Marsh, Lancashire; Stretford, near Manchester; Carlisle; Scotland, very rare, Solway and Forth districts.

HOMALIINÆ.

This sub-family contains upwards of forty genera, of which by far the largest in point of numbers is *Homalium*; this genus, however, is by some authors split up into seven or eight sub-genera; the great characteristic of the sub-family is the presence of two ocelli or simple lenses on the vertex of the head, which are usually placed on a line joining the posterior margins of the eyes; the anterior coxæ are conical and prominent, and the posterior ones transverse; the body, as a rule, is flat and the elytra often cover a great portion of the hind body; all the tarsi are five-jointed; very little appears to be known as yet regarding their transformations.

The following arrangement of the genera must be regarded as more or less provisional, as it is rather hard to arrange them satisfactorily:—

- I. Maxillary palpi with the last joint very minute, subulate; penultimate joint very strongly dilated.
 - i. Posterior tarsi with first and second joints rather longer than the two following; antennæ more slender *CORYPHIUM*, Steph.
 - ii. Posterior tarsi with joints 1-4 about equal in length; antennæ shorter and stouter *EUDECTUS*, Redt.
- II. Maxillary palpi with the last joint more or less elongate; penultimate joint not, or only slightly, dilated.
 - i. Posterior tarsi with joints 1-4 unequal in length.
 1. Posterior tarsi elongate nearly as long as tibiæ *PHILORHINUM*, Kraatz.
 2. Posterior tarsi distinctly shorter than tibiæ.
 - A. Maxillary palpi with the last joint four times as long as the penultimate *LESTEVA*, Latr.
 - B. Maxillary palpi with last joint equal to or a little longer or shorter than penultimate.
 - a. Mandibles strongly denticulate with the teeth long and sharp.
 - a*. Maxillary palpi with penultimate joint not dilated *ANTHOPHAGUS*, Grav.
 - b*. Maxillary palpi with penultimate joint distinctly, although not strongly dilated, pyriform, plainly broader at apex than last joint *GEODROMICUS*, Redt.
 - b. Mandibles quite simple, or at most with a trace of a blunt tooth at apex.

- a*. Maxillary palpi with the last joint plainly longer than penultimate; antennæ rather stout; elytra longer . . . ACIDOTA, *Steph.*
- b*. Maxillary palpi with last joint rather shorter than penultimate; antennæ slender; elytra very short . . . ARPEDIUM, *Er.*
- ii. Posterior tarsi with joints 1-2 elongate, nearly equal in length.
 - 1. Mesosternum strongly emarginate in front with a sharp tooth in the middle of emargination; tibiæ spinose . . . LATHRIMÆUM, *Er.*
 - 2. Mesosternum simply emarginate in front.
 - A. Last joint of posterior tarsi short.
 - a. Tibiæ pubescent . . . OLOPHRUM, *Er.*
 - b. Tibiæ spinose . . . DELIPHRUM, *Er.*
 - B. Last joint of posterior tarsi elongate, nearly as long as the other joints together; tibiæ spinose . . . EUSPHALERUM, *Kr.*
 - iii. Posterior tarsi with joints 1-4 equal in length, very short.
 - 1. Elytra very short . . . MICRALYMMMA, *Westw.*
 - 2. Elytra long, covering a great part of the hind body.
 - A. Tibiæ more or less spinose . . . HOMALIUM, *Grav.*
 - B. Tibiæ pubescent, not perceptibly spinose.
 - a. Legs very slender, tarsi simple, filiform; head with a raised line near eyes.
 - a*. Form oblong ovate, not very convex, hind body rather short; posterior tarsi with the last joint equal in length to the others together . . . HAPALARÆA, *Thoms.*
 - b*. Form ovate, very convex; hind body very short; posterior tarsi with the last joint longer than the others taken together . . . ACRULIA, *Thoms.*
 - b. Legs stouter; tarsi with the first four joints somewhat dilated; head without raised line near eyes . . . ANTHOBIUM, *Steph.*

ANTHOPHAGUS, Gravenhorst.

The genera *Anthophagus* and *Geodromicus* which are classed together by many authors contain between them upwards of forty species, several of which appear now to be considered as varieties; the great majority of these belong to the former genus, of which no less than twenty-one species are recorded as European in the catalogue of Heyden, Reitter, and Weise; several occur in the Caucasus district and one or two are found in North America; they are chiefly found in hilly or mountainous districts; there are two British species.

- I. Elytra broad, much wider at apex than at base, strongly punctured; thorax red; size larger . . . A. TESTACEUS, *Grav.*
- II. Elytra narrower, not much wider at apex than at base, more finely punctured; thorax black; size smaller . . . A. ALPINUS, *Payk.*

A. testaceus, Grav. (*palustris*, Heer, *caraboides*, L., var.). Depressed, rather shining, rufo-testaceous, with the head darker, and the elytra lighter, and the hind body more or less dark before apex; head in both sexes not broader than thorax, rather strongly and thickly punctured, with clypeus smooth, strongly narrowed before eyes which are not large, but distinct and prominent; disc with two oblique depressions; antennæ very long, much longer than head and thorax united, reddish testaceous; thorax much narrower than elytra, with sides rounded in front and gently narrowed behind, posterior angles sharp right angles, rather thickly, strongly, and regularly punctured; elytra more than double as long as thorax, rather strongly punctured; hind body diffusely and very finely punctured; legs testaceous. L. $4\frac{1}{2}$ mm.

Male with the sixth segment of hind body emarginate at apex.

In moss, &c.; a northern species, and rare further south than Northumberland; sometimes abundant where it occurs; Scarborough; Southport; Northumberland district, abundant in woods, Wallington, &c.; Scotland, common and widely distributed in Lowland districts as far north as the Moray district, and probably in the more northern counties.

Specimens occur in which the head and thorax are dark red or even almost black.

A. alpinus, Payk. Smaller and narrower than the preceding and more parallel; head differing very much in the two sexes; thorax more diffusely and finely and less regularly punctured; elytra much more finely and less evidently punctured and much less dilated behind; the species may also be easily distinguished by its colour, the head and thorax being black or very dark and the hind body entirely black; the antennæ also are dark with base testaceous; legs testaceous with femora a little darker in some specimens. L. 3–4 mm.

Male with the sixth ventral segment of hind body emarginate at apex, and with the head very large, broader than thorax, and furnished on each side in front with a rather long and sharp projecting horn; the mandibles also are strongly developed; in the female the head is narrower than or about as broad as thorax, without horns, and with the mandibles not strongly developed.

In moss and by sweeping, &c.; confined to hilly and mountainous districts; Snowdon district, North Wales; Ripon, Yorkshire; Northumberland district, top of Cheviot, Hedgehope, &c.; Scotland, Highland and alpine districts; local, but sometimes abundant, Tweed, Tay, and Dee districts (Glasgow; Ben Lomond; Rannoch, common on Grayvel, &c.). According to Thomson it occurs chiefly on leaves of willow or birch trees.

GEODROMICUS, Redtenbacher.

This genus appears to comprise about half-a-dozen species, two of which are European; they appear to be extremely variable, to judge by the amount of varieties and synonyms which follow their names in the

European catalogue; our species *G. nigrita* is really a variety of *G. plagiatus*, F., the type form not occurring in Britain; the species differ from *Anthophagus*, with which they are united by many authors, by having the penultimate joint of the maxillary palpi strongly dilated and pyriform and evidently broader than the last joint, and also by the absence of the small membranous plate beneath the tarsal claws, which is present in the first-mentioned genus.

I. Elytra more than twice as long as thorax; legs black

with tarsi lighter; form broader *G. NIGRITA*, Müll.

II. Elytra scarcely twice as long as thorax; legs

reddish; form narrower *G. GLOBULICOLLIS*, Zett.

G. nigrita, Müll. (*plagiatus*, var. *b*, Heer, *anthracinus*, Bris.).

Deep black, shining, with greyish pubescence; head in both sexes somewhat narrower than thorax, rather deeply punctured, strongly impressed in middle, with two oblique depressions more or less distinctly marked; antennæ much longer than head and thorax, blackish brown, or ferruginous; thorax much narrower at base than apex, cordiform, with sides strongly rounded in front and narrowed behind, posterior angles sharp right angles, not very closely and strongly punctured; elytra more than double as long as thorax, widened behind, with shoulders raised and callose, not deeply but plainly and not very closely punctured; hind body finely and asperately punctured; legs black or pitch-black with tarsi lighter. L. $4\frac{1}{2}$ –5 mm.

Male with the sixth ventral segment of hind body emarginate at apex.

In moss at the sides of lakes, streams, and waterfalls; Bewdley Forest; Llangollen; Manchester district; Scarborough; banks of the Bollin, Cheshire; Northumberland district, Wallington, Rothley Lakes; rare on the Derwent and Irthing; Scotland, local, Solway, Tweed, Dee, and Moray districts; Ireland, Newcastle, co. Down.

In the type form (*G. plagiatus*), which does not occur in Britain, the elytra have a red band on each or a common red spot at suture; Stephens' *Lesteva plagiata* is only a variety of *L. longelytrata*.

G. globulicollis, Mann. Smaller than the preceding, and easily distinguished from it by its pitchy-red appearance, narrower form, and much shorter elytra; the thorax is proportionally longer and narrower with the sides less rounded in front and contracted behind, and is more finely punctured; the punctuation of the elytra is much stronger than that of thorax, and is deeper than in *G. nigrita*; the legs are red or pitchy red; the species is rather variable in colour, some specimens being much lighter than others. L. 4 mm.

In moss, &c.; a highland and alpine species, which has not been taken in Britain, except on Snowdon and in Scotland; rare; Clyde, Tay, Dee, and Moray districts (Loch-na-gar, Ben Lomond, &c.).

LESTEVA, Kraatz.

The species belonging to this genus are closely allied to those in the preceding genera, but are very easily distinguished by the elongate last joint of the maxillary palpi, which is four times as long as the penultimate; in *Anthophagus* and *Geodromicus* the penultimate is only a little, if at all, shorter than the last joint; the genus comprises about twenty-five species, which are confined to the cold and temperate portions of the Old and New Worlds; one species (our common *L. longelytrata*) ranges under different names from Siberia to Algeria; there are about ten species found in Europe; our five representatives may be distinguished as below; the sexual characters are not remarkable, the male having the sixth segment of hind body truncate.

- I. Elytra very long, more than double as long as thorax,
very closely and moderately strongly punctured . . . **L. LONGELYTRATA**, Goeze.
- II. Elytra shorter, about or not quite twice as long as
thorax.
 - i. Size larger; form rather broad; antennæ long and
slender.
 - 1. Punctuation of elytra moderately strong . . . **L. SHARPI**, Rye
(*monticola*, Sharp).
 - 2. Punctuation of elytra extremely close and fine . . . **L. PUBESCENS**, Mannh.
 - ii. Size smaller; form narrower; antennæ shorter;
elytra very strongly and deeply punctured.
 - 1. Thorax shorter; third joint of antennæ shorter;
elytra more closely punctured **L. SICULA**, Er.
(*punctata*, Brit. Coll.).
 - 2. Thorax longer; third joint of antennæ longer;
elytra less closely punctured **L. PUNCTATA**, Er.
(*muscorum*, Duv.).

L. longelytrata, Goeze (*bicolor*, F.). Black, rather shining, clothed with fine grey pubescence, elytra often lighter or darker pitchy brown; head rather narrower than thorax, thickly and deeply punctured; antennæ longer than head and thorax united, ferruginous, with first joint, and the second except base, black or darker than the rest; thorax much narrower than elytra, subcordiform, with sides rounded in front and contracted behind, posterior angles right angles, thickly and deeply punctured; elytra very long, more than double as long as thorax, dilated behind, very closely and moderately strongly punctured; hind body very finely punctured; legs lighter or darker red. L. $3\frac{1}{2}$ –4 mm.

In moss, refuse, &c., mostly in damp places; generally distributed and common throughout the kingdom.

L. Sharpi, Rye (*monticola*, Sharp, *nec* Kies.). This species is very like *L. pubescens* in general appearance, but may easily be distinguished from that species by the evidently much stronger punctuation of the elytra; it is of the same size as *L. longelytrata*, from which it may be distinguished by its rather longer antennæ which are of a clearer red colour, by its longer thorax, and by the less close and stronger punctuation and evidently longer pubescence of the thorax and elytra, the latter of which are shorter;

it is very close to *L. monticola*, Kies. (with which it is regarded as synonymous by many authors), but in that species the punctuation of the elytra is finer than in *L. Sharpi*, the hinder angles of thorax are not so acute, and the pubescence is grey; in *L. Sharpi* the punctuation is distinctly stronger, the hinder angles are slightly sharper, and the pubescence is yellowish; it therefore seems to be a distinct species. L. $3\frac{1}{2}$ –4 mm.

In moss, &c., in damp places; rare; Llangollen; Snowdon; Northumberland district, Wallington (Power); Scotland, Highlands, local, Solway, Forth, Clyde, Tay, Dee, and Moray districts.

L. pubescens, Mannh. Rather shorter and broader than *L. longelytrata*, and at once distinguished from that and all our other species by the extremely close and fine punctuation of the elytra, and in fact of the front parts generally; the antennæ are longer and more slender, unicolorous reddish testaceous; the thorax is less cordiform, with sides somewhat angularly rounded at its widest part, and less sinuate behind, disc plainly impressed; the elytra are hardly double as long as thorax; legs red or reddish with femora usually darker. L. $3\frac{1}{2}$ – $3\frac{3}{4}$ mm.

In moss about streams and waterfalls; not common, although very widely distributed; Bromley, Kent; Isle of Wight, Ventnor, &c.; Barrucane Bay, North Devon; Llangollen; Snowdon; Bewdley; Tewkesbury; Matlock; Church Stretton, Cheshire; Repton; Lymm, near Warrington; not recorded from the Northumberland district, but almost certainly occurs; Scotland, scarce, but widely distributed; Solway, Tweed, Clyde, Tay, Dee, Moray, and Shetland districts.

L. sicula, Er. (*Heeri*, Fauv., *punctata* of all British catalogues). Smaller and narrower than any of the preceding species, and at once distinguished from them, apart from other characters, by the very strong and coarse punctuation of the elytra; the species above described are winged, but this insect is apterous, and in consequence has the elytra evidently depressed towards base; the thorax is transverse or almost transverse at its widest part; the antennæ are rather stouter; these latter and the legs are red or reddish testaceous; the colour is somewhat variable, being pitch-black or lighter or darker pitchy brown or reddish: I have taken several specimens in the Isle of Wight, which when alive were entirely of a bright reddish-testaceous colour, and did not seem to be immature. L. $3\frac{1}{2}$ mm.

Damp places; at roots of grass, in flood refuse, moss, &c., also under stones near running streams and waterfalls; rather common in the south and Midlands, and also in the London district; rarer further north; Northumberland district, not common, but widely distributed; Scotland, Lowlands, not common, Solway, Tweed, Forth, Tay, Dee, and Moray districts; Ireland, Dodder Banks, Dublin; Galway; Newcastle, co. Down.

L. punctata, Er. (*muscorum*, Duv.). Closely allied to the preceding, with which it appears to be considered as synonymous by continental authors; it is, however, usually larger, and especially longer; its antennæ are longer, the third joint being conspicuously so; its head is not so closely applied to the thorax, and is more deeply and regularly foveated, with the

interstices of the punctures, especially behind, wider and more shining; the thorax is evidently longer than broad, and is more suddenly narrowed behind middle, with an evident lateral impression at the point of contraction; the punctuation also is coarser and not so close, and there are more evident traces of dorsal impressions, and the elytra are longer: the differences given are mostly comparative and not very marked, and it seems very probable that after all the species will have to be sunk as a variety of the preceding. L. $3\frac{1}{2}$ – $3\frac{3}{4}$ mm.

In moss, &c., in damp places; Scotland, Lowlands, rare, Solway, Clyde, and Moray districts.

It is now considered that Duval's *L. muscorum* was the real *L. punctata* of Erichson and Heer, so the above alteration in nomenclature must be adopted.

ACIDOTA, Stephens.

This genus contains about a dozen species from the temperate and northern portions of the Old and New Worlds; there are three European species, of which two are British; they are among the least common of our Staphylinidæ; they are distinguished by their elongate-oblong and rather broad form, and cannot well be confounded with any other genus; the male characters are as in the preceding genus.

I. Thorax convex, even; colour pitchy; size larger.

II. Thorax with disc rather flat and more or less obsoletely impressed; colour reddish testaceous; size smaller.

A. crenata, F. (*rufa*, Grav., *pulchra*, Mots.). Elongate-oblong, rather broad, subparallel, somewhat convex, glabrous, dark pitchy, or chestnut-brown, with the margins of thorax, elytra (at least towards apex), and the apical margins of the segments of hind body reddish; head small, thickly and deeply punctured; antennæ rather long and stout, reddish testaceous, penultimate joints about as long as broad; thorax about as long as broad, with sides rounded and narrowed in front and behind, posterior angles blunt, broadest behind middle, rather strongly margined, disc convex and even, thickly and deeply punctured; elytra much longer than thorax strongly punctured in evident and more or less regular striæ; hind body thickly and deeply punctured; legs red. L. 6– $6\frac{1}{2}$ mm.

In moss, &c.; occasionally taken on the wing; rare; Reigate, in sphagnum; Tonbridge; Oxfordshire; Branksome Park, Bournemouth, one specimen on the wing (Kemp-Welch); Snowdon; Yorkshire; Stalybrushes, Cheshire, in ants' nests and under stones (Chappell); Northumberland district rare, woods near Ravensworth Castle (Hardy); Scotland, Lowlands, Highland and alpine districts, local, Solway, Tweed, Forth, Tay, Dee, Moray, and Caithness districts.

A. cruentata, Mannh. Much smaller than the preceding, and easily distinguished by its entirely rufo-testaceous colour and somewhat flattened and impressed disc of thorax; the antennæ are evidently shorter and stouter with the joints less elongate, and the thorax is differently

shaped, being subquadrate with the sides very slightly rounded, and almost as broad in front as behind; the elytra are strongly punctured in more or less regular rows, but are not so plainly striate. L. $4\frac{2}{3}$ –5 mm.

In moss, &c.; about the bark of fir trees; occasionally found in sandpits and crawling on walls; rare; Greenwich; Shirley; Birch Wood; Reigate; Chiswick; Hastings; Harwich; Stretford and Agecroft, near Manchester, on walls and in haystacks; Coleshill, near Birmingham; Scarborough, flood refuse; Northumberland district, Hetton Hall near Belford; Scotland, Lowlands, Solway, Tweed, and Forth districts.

V. ferruginea, Er. Smaller and narrower than the type, with much shorter elytra, of which the punctuation appears rather more confused; it seems to bear the same relation to *A. cruentata* that *A. rufa*, Grav., bears to *A. crenata*. L. $4\frac{1}{3}$ – $4\frac{1}{2}$ mm.

Scarborough (five specimens taken by R. Lawson in flood refuse in the autumn of 1872); Studley, Yorkshire (Waterhouse).

OLOPHRUM, Erichson.

This genus contains about twenty species, which are found in the temperate and more particularly in the northern and colder regions of the Old and New Worlds; they are found in damp places, in moss, dead leaves, &c.; they are recognizable by their broad and convex form, dark pitchy-red appearance, and long elytra which cover the greater part of the hinder portion of the body, the hind body itself being short; there are three British species, one of which is common and the others local or rare.

- I. Thorax with sides completely rounded, posterior angles rounded; elytra shorter.
 - i. Form broader and more convex; elytra confusedly punctured. *O. PICEUM*, Gyll.
 - ii. Form narrower and more depressed; elytra punctured in more or less distinct rows near suture *O. FUSCUM*, Grav.
- II. Thorax with sides slightly sinuate behind middle; posterior angles somewhat prominent; elytra longer *O. CONSIMILE*, Gyll.

O. piceum, Gyll. Oblong, convex, with hind body conical and strongly acuminate, dark pitchy-red, shining; head small, coarsely punctured; antennæ moderately long, red or ferruginous, with base and apex often lighter, penultimate joints not transverse; thorax behind as broad as elytra, about twice as broad as long, sides moderately rounded, posterior angles rounded, strongly punctured, with a small smooth space generally distinct in centre behind middle; scutellum punctured or almost impunctate; elytra double as long as thorax, widened behind, very coarsely and irregularly punctured; hind body very finely shagreened, usually lighter at apex; legs red. L. 4–5 mm.

In moss, dead leaves, at the roots of grass, &c., in damp places in woods and other localities; common and generally distributed throughout the kingdom as far north as the Shetland Islands.

O. fuscum, Grav. (*laticolle*, J. Sahlb.). Rather shorter, more depressed, and narrower than the preceding, and, as a rule, more darkly coloured; the head is often quite black and the disc of thorax is sometimes much darker than the margins; the thorax is longer and less transverse, being only about one and a half times as broad as long, and its side margins are more strongly raised than in *O. piceum*; the scutellum is furnished with one or two or more punctures (the distinctions, however, drawn from the punctuation of the scutellum in this genus are very unsatisfactory); the elytra are narrower, and their punctuation is arranged in more or less irregular but distinct rows near suture. L. 4 mm.

In moss, &c.; very local; rare in England, Coleshill, Sutton Park, Bewdley and Matlock (Blatch); Scarborough; Scotland, Lowlands, local, Solway and Forth districts: it is worthy of notice how many of the northern species have been found by Mr. W. G. Blatch in various Midland localities, especially in Bewdley Forest and on Cannock Chase.

O. consimile, Gyll. (*limbatum*, Mäkl.). Narrower than the preceding and somewhat longer; it may, however, be easily distinguished from both the other species by having the sides of the thorax slightly sinuate behind middle, so that the posterior angles, instead of being rounded, are somewhat prominent; the elytra are longer in proportion; the scutellum appears to be always deeply and diffusely punctured. L. 4-5 mm.

In wet moss and banks of streams on mountains, often near the snow; very local and rare; Scotland, Dee district (Braemar).

LATHRIMÆUM, Erichson.

This genus comprises about a dozen species, which appear to be distributed much as those belonging to the two or three preceding genera: Kraatz mentions an undescribed species from Chili, but I can find no further record of it; our species are small insects, much resembling *Olophrum* in form, but much smaller and lighter coloured; they are found in decaying fungi, moss, dead leaves, &c.; the sexual differences are as in the preceding.

- I. Head black or dark pitchy brown; thorax with distinct central furrow; size smaller L. **ATROCEPHALUM**, Gyll.
- II. Head yellowish-red; thorax with central furrow obsolete and abbreviated and often absent; size larger L. **UNICOLOR**, Steph.

L. atrocephalum, Gyll. (*nec* Heer) (*melanocephalum*, Marsh, *nec* Ill.). Short and broad, somewhat oblong, convex, rufo-testaceous with head black or dark brown, shining; antennæ thickened towards apex, rather long, testaceous with apex pitchy; head small, thickly and deeply punctured behind, smooth and shining in front; thorax at base a little narrower than elytra about twice as broad as long, with sides

moderately rounded and central furrow very distinct, thickly and strongly punctured; elytra more than double as long as thorax, almost covering hind body, strongly and rather regularly punctured in rows; hind body almost concealed, very finely punctured. L. $2\frac{1}{2}$ –3 mm.

In moss, dead leaves, decaying fungi, &c.; common and generally distributed throughout the greater part of England; rarer further north; Scotland, not common, Tweed, Forth, and Dee districts; Ireland, Armagh, and probably widely distributed.

L. unicolor, Steph. (*luteum*, Er.). Very like the preceding, but evidently larger; it may as a rule be distinguished by its much lighter-coloured head, but in mature specimens this is sometimes nearly as dark as in immature specimens of *L. atrocephalum*; the thorax has the central furrow obsolete and abbreviated and very often absent, and the elytra are distinctly more coarsely and somewhat less regularly punctured. L. 3 – $3\frac{3}{4}$ mm.

In moss, dead leaves, decaying fungi, &c.; common and generally distributed throughout the kingdom.

DELIPHNUM, Erichson.

This genus contains six or seven species, three of which are European; two or three occur in Siberia and one in Colorado; superficially they much resemble *Homalium*, and are chiefly distinguished from that genus by the relative length of the joints of the posterior tarsi; they occur in dung, especially sheep-dung, under bones, refuse, &c.; the sexual differences are unimportant, and are the same as in the preceding genera.

- I. Length 3 mm.; elytra confusedly punctured D. **TECTUM**, Payk.
 II. Length $4\frac{1}{2}$ –5 mm.; elytra punctured in striæ D. **CRENATUM**, Grav.

D. tectum, Payk. Rather broad and depressed, shining black, with the elytra testaceous, and the extreme margins of thorax reddish; head short, transversely triangular, very finely punctured; antennæ rather short, a little thickened towards apex, blackish with the base sometimes lighter, penultimate joints broader than long; thorax transverse, narrower in front than behind, nearly as broad behind as elytra, even and somewhat convex, thickly and finely punctured, posterior angles rounded; elytra much longer than thorax, widened behind, thickly and finely but rather deeply punctured; hind body very finely punctured, usually yellowish at apex; legs testaceous. L. 3 mm.

In sheep-dung, at sap, in refuse, flood rubbish, &c.; not common; I have taken it in flood rubbish at Repton near Burton-on-Trent, and Mr. Blatch has found it under bones at Knowle near Birmingham, but I know of no localities further south; Matlock; Scarborough; Cheshire; Northumberland district (Gosforth, &c.); Scotland, in sheep-dung and at oozing sap, local, but rather widely distributed, Tweed, Forth, Tay, Dee, and Moray districts, usually on hills or mountains; Ireland, Belfast (?).

D. crenatum, Grav. Of a shining brownish colour, with the base

of the antennæ and the legs testaceous; the thorax is rather narrower than the elytra, moderately transverse, rather diffusely and finely punctured, with two more or less plain impressions on middle of disc, posterior angles almost right angles; elytra nearly double as long as thorax with regular rows of punctures, the interstices being confusedly punctured; hind body diffusely and finely punctured; legs red. L. $4\frac{1}{2}$ –5 mm.

Very rare; Scotland, Tay district; taken by Turner.

This species is entirely different from *D. tectum*; it has much the appearance of *H. florale*, from which, according to Mr. Rye, it may be readily distinguished by its longer antennæ, punctate-striate elytra, and sparingly but visibly punctured hind body; the colour also appears to be different.

ARPEDIUM, Erichson.

This genus contains thirteen or fourteen species, the range of which is much the same as that of the members of the preceding genera; they are distinguished superficially by their short elytra.

A. brachypterum, Grav. Pitchy black or brownish, with the margins of thorax and elytra and the apex of hind body sometimes obscurely lighter; head narrower than thorax, very finely punctured, with two rather strong oblique furrows before ocelli; antennæ reddish or pitchy-red, slightly thickened towards apex; thorax about as long as broad, at its widest as broad as base of elytra, with sides and angles rounded, finely punctured, and alutaceous; elytra short, not much longer than thorax, rather diffusely and distinctly punctured; hind body long, finely punctured, and alutaceous; legs brownish testaceous, or reddish. L. $3\frac{1}{2}$ –4 mm.

Male with the anterior tarsi distinctly dilated, and the anterior tibiæ feebly toothed in the middle.

In wet moss and at roots of heather, usually on mountain sides; Snowdon; Northumberland district, rare, on the top of Cheviot and of Hedgehope; Scotland, hilly and mountainous districts, common, Tweed, Solway, Clyde, Tay, Dee, Moray, and Shetland districts; Ireland, Newcastle, co. Down. Mr. Blatch has taken it at Sutton Park, near Birmingham.

MICRALYMMA, Westwood.

This genus is related to the preceding by its short elytra, but is widely separated from it in several particulars; the habitat also of its members is quite different; it contains about half-a-dozen species, which are found in Greenland, Siberia, and North America; one only occurs in Europe; it is found on or near the coast often below high-water mark.

M. brevipenne, Gyll. (*marinum*, Stroem., *Johnstoni*, Westw.). Black, rather dull, the whole upper surface being finely alutaceous between

the punctures; head large not much shorter than thorax, finely and diffusely punctured, smooth in front, with impressions before ocelli; antennæ short and stout, black with reddish base, penultimate joints strongly transverse; thorax somewhat cordiform, with sides rounded in front and contracted behind, posterior angles blunt, punctuation as on head; elytra shorter than thorax, much dilated behind, strongly rugose; hind body dilated and rounded at sides very finely punctured; legs pitchy-black or pitchy-red, femora darker. L. 3 mm.

About old posts, under stones, &c., on or near the coast; local; Harwich; Plymouth; Isle of Wight; Lymington; Weymouth; South Devon, Kingsbridge, &c.; Barmouth; Lancashire and Cheshire, Constantine, Hoylake, Grange-over-Sands, &c.; Northumberland district, sparingly on the sea-coast in the fissures of shaly sandstone, crevices of limestone, beneath stones, &c., often below high-water mark; Scotland, very local, maritime, Tweed, Clyde, Forth, and Tay districts. I have taken it a long way below high-water mark at Ventnor, Isle of Wight, running on stones in the sun, in company with a species of *Thysanura*, which it probably preys on, and larger specimens of which it rather strongly resembles at a little distance; it is slow in its movements.

PHILORHINUM, Kraatz.

This genus contains three or four species from Europe and the Canary Islands; in appearance they resemble a small *Homalium*; the sexual differences are unimportant.

P. sordidum, Steph. (*subpubescens*, Steph., *humile*, Er.). Elongate, depressed, subparallel, black, with the elytra pitchy testaceous, and the head and thorax often lighter or darker pitchy brown; head and thorax thickly, evenly, and somewhat deeply punctured; head smooth and even with the ocelli hardly visible; antennæ with the first four joints yellow and the rest darker testaceous or fuscous, penultimate joints oblong; thorax not much broader than long, with apex truncate, and sides and posterior angles rounded; elytra plainly double as long as thorax, with rather shallower and slightly rugose punctuation; hind body finely punctured; legs testaceous, femora and tibiæ sometimes a little infusate. L. 2 mm.

On flowers of gorse, broom, &c.; also on oak; locally abundant; London district, generally distributed; Hastings; Glanvilles Wootton; Isle of Wight (abundant on furze in spring); Exeter; Plymouth; rarer in the Midlands, Sherwood Forest, &c.; Scarborough; Manchester; Northumberland district; Scotland, local, Solway, Tweed, and Forth districts; Ireland, Dublin, Phoenix Park.

EUDECTUS, Redtenbacher.

This genus contains at present three species, *E. Whitei*, *E. Giraudi*, which occurs in the German mountains, and *E. rufulus* taken by Mr. Lewis in Japan; Dr. Sharp appears to be of opinion that the three species will be found to be connected by a form yet remaining to be discovered in Siberia; in common with *Coryphium* the genus is remarkable for the strongly dilated pyriform penultimate joint of the maxillary

palpi, but it is distinguished from that genus by its shorter and stouter antennæ, and by the fact that the posterior tarsi have the first four joints of about equal length; one specimen only has occurred in Britain.

E. Whitei, Sharp. Black, rather shining, very finely pubescent, closely and strongly punctured; antennæ rather short and stout with penultimate joints transverse; thorax rather short with the sides dilated and strongly angulated (a character that will at once separate it from *Coryphium angusticolle*, the only British species with which it can be compared); legs black, knees and tarsi pitchy. L. $2\frac{1}{4}$ mm.

A single specimen was taken by Dr. Sharp in June, 1871, on the summit of Ben-a-Bhuird, Braemar, Dee district: *E. Giraudi* appears to be a bark insect, and therefore Dr. Sharp believes that a coleopterist working at the old trees at the foot of Ben-a-Bhuird or other of the high mountains in the heart of the Grampians might perhaps be fortunate enough to meet with the species.

CORYPHIUM, Stephens.

This genus contains about half-a-dozen species from Europe and North America; they may be distinguished, as above mentioned, by the strongly dilated penultimate joint of the maxillary palpi, the terminal joint being extremely minute, subulate, and hardly perceptible; they occur under bark, about old posts, in moss, &c.

C. angusticolle (*brevicolle*, Hal., *bijoveolatum*, Thoms.). Black or pitchy black, rather shining, finely pubescent; head, thorax and elytra rather closely and moderately strongly punctured, that of the elytra being very slightly rugose in places; head with eyes nearly as broad as thorax, with strong depressions in front, ocelli very plain; antennæ rather stout, pitchy with base red; thorax very transverse, with sides rounded in front and contracted behind, posterior angles blunt, with two more or less obsolete depressions on disc; elytra more than twice as long as thorax, widened behind, shoulders well marked, posterior sutural angles sharper in male than in female; hind body finely and moderately thickly punctured; legs testaceous with tarsi sometimes infusate. L. 3 mm.

Male with the first four joints of the front tarsi dilated, hind body more acuminate at apex, sutural angle of elytra sharp.

Under bark of beech, fir, &c., in moss, on old posts, &c.; rather widely distributed, but always rare; Chatham, St. Mary Cray, Forest Hill, Caterham, Bishops Wood, Weybridge, Highgate, Dulwich; Hastings; Glanvilles Wootton; Gumley, Market Harborough; Sutton Park; Knowle; Needwood; Buddon Wood; Foremark, near Repton; Chat Moss; Lincoln; Northumberland district, rare; Scotland, very rare, Clyde district.

HOMALIUM, Gravenhorst. (*Omalium*, Er., &c.).

This genus comprises about 150 species, the great majority of which inhabit the temperate and northern portions of both the Old and New Worlds; a few species have been recorded from South Africa and Ceylon, twenty-three from North America, eight from Central America,

and only one from Tropical South America ; a considerable number also have recently been described from Australia and New Zealand ; they are distinguished by their usually long parallel-sided form, long elytra, and more or less spinose tibiæ ; all the tarsi are five-jointed, the first four joints being short, of about equal length, and taken all together either shorter or only slightly longer than the last joint.

There are about fifty European species, of which about thirty are British ; some of these are very distinct, but many of them are closely allied and require great care in distinguishing them, as the differences are merely comparative ; the best plan appears to be to separate them first into sections according to the various sub-genera into which they have been divided, and then to tabulate them under these sections.

The sexual differences are, with one or two exceptions, very slight, and do not require separate notice ; the male has the sixth ventral segment of hind body truncate or slightly emarginate at apex, and the seventh somewhat more projecting than in the female.

The larva of *Homalium vile* is described and figured by Perris, Ann. Fr. 1853, p. 576, pl. 17, fig. 49-55 : it is about 3 mm. in length and is shaped almost exactly like that of *Phlæopora reptans*, but differs in being of a uniform livid reddish colour, in its longer head, and the different formation of the apical abdominal segments and appendages ; the eighth segment is not prolonged above the ninth, and the ninth is narrow and bears a short anal appendage, and two rather long cerci, of which the first joint is as long as the anal appendage, and is longer than the second joint ; the insect has the power of widening or lessening the distance between these cerci at will ; above each antenna there is a small reddish ocellus.

The larva of *H. pusillum* is smaller than the preceding, and differs in having five ocelli on each side of the head, and in its longer anal appendage which is about as long as the cerci ; these latter have the first joint double as long as the second.

Both these larvæ, like those of *Phlæopora* and *Placusa*, live in the galleries of *Tomicus* and devour the pupæ of species of that genus.

I. Form elongate, parallel ; elytra not dilated behind, hind body elongate, more or less parallel-sided for the greater part of its length.

i. Antennæ pilose ; forehead almost always furnished with a line or fovea before ocelli.*

1. Hind body deeply impressed within lateral margin.

A. Upper surface glabrous ; elytra confusedly punctured.

a. Last joint of maxillary palpi double as long as the preceding ; tibiæ spinose ; form less flat ; thorax with impressions rather strongly marked.

Section I. (**Homalium**, i. sp., p. 411.)

b. Last joint of maxillary palpi not much longer than penultimate ; tibiæ feebly spinose ; form flat, dull, very small ; thorax with impressions strongly marked.

Section II. (**Phlæonomus**, Heer, p. 416.)

c. Last joint of maxillary palpi about three times as long as the preceding ; tibiæ spinose ; form rather flat ; thorax with impressions shallow.

Section III. (**Xylodromus**, Heer, p. 417.)

* The only exceptions are *H. vile*, *H. brevicorne*, *H. gracilicorne*, and *H. iopterum* (in the sub-genus *Phyllodrepa*).

- B. Upper surface slightly but evidently pubescent; elytra as a rule more or less plainly punctured in striæ or longitudinally strigose; thorax with dorsal impressions more or less obsolete or absent.

Section IV. (**Phyllodrepa**, Thoms. p. 417.)

2. Hind body scarcely impressed within lateral margin; form flat, shining, very small.

Section V. (**Phlœostiba**, Thoms. p. 421.)

- ii. Antennæ shorter than head and thorax, pubescent; forehead with foveæ before ocelli very small or absent; thorax with impressions very obsolete, or quite wanting.

Section VI. (**Etheothassa**, Thoms. p. 421.)

- II. Form short; elytra more or less dilated behind; thorax with dorsal furrows obsolete or absent; hind body short, ovate, strongly narrowed and acuminate behind; elytra plainly punctured in rows.

Section VII. (**Acrolocha**, Thoms. p. 423.)

Section I. (**Homalium**, i. sp.)

The species belonging to this section differ considerably in size and sculpture, but some of them are extremely closely allied to one another; they are found in decaying vegetable refuse, carcasses, in decaying fungi, at sap, &c., but none of them are bark or flower frequenting insects.

- I. Head with two round or roundish depressions before ocelli.
- i. Length 3-4 mm.; head as a rule rather diffusely, or not very closely, punctured, sometimes almost impunctate in front.
 1. Sides of thorax moderately or slightly rounded and widened in front and narrowed behind.
 - A. Disc of thorax rather closely punctured; elytra strongly punctured.
 - a. Antennæ longer, dark with base red; elytra not rugosely punctured, shiny. . . H. RIVULARE; Payk.
 - b. Antennæ shorter, entirely testaceous; elytra rugosely punctured, rather duller. . . H. RUGULIPENNE, Rye.
 - B. Disc of thorax almost impunctate; elytra finely punctured H. LÆVIUSCULUM, Gyll.
 2. Sides of thorax very slightly rounded and not widened in front, and straight or almost straight behind.
 - A. Disc of thorax closely punctured H. SEPTENTRIONIS, Thoms.
 - B. Disc of thorax diffusely punctured H. RIPARIUM, Thoms.
 - ii. Length $1\frac{3}{4}$ - $2\frac{1}{2}$ mm.; punctuation of head closer.
 1. Antennæ dark with first six basal joints red; elytra brownish or pitchy-black with shoulders more or less broadly testaceous; size larger . . H. ALLARDI, Fairm.
 2. Antennæ unicolorous, blackish or pitchy; elytra unicolorous, pitchy brown or black; size smaller.

- A. Forehead with very strong impressions near antennæ nearly meeting impressions before ocelli; elytra strongly and very closely punctured *H. EXIGUUM*, *Gyll.*
- B. Forehead with impressions near antennæ not strong; elytra less strongly and closely punctured *H. OXYACANTHÆ*, *Grav.*
- II. Head with two large and deep longitudinal impressions before ocelli, very closely, deeply and thickly punctured; length $3-3\frac{1}{2}$ mm. *H. EXCAVATUM*, *Steph.*
- III. Head with two narrow impressed lines before ocelli; front parts very closely punctured, dull; length $2-2\frac{1}{2}$ mm.
1. Form narrower and darker; elytra shorter in proportion, less coarsely punctured *H. CÆSUM*, *Grav.*
2. Form broader, usually reddish brown with head black; elytra longer in proportion, a little more coarsely punctured *H. NIGRICEPS*, *Kies.*

III. rivulare, Payk. Black, shining, elytra lighter or darker yellowish brown, or pitchy; head triangular, moderately thickly punctured, almost smooth in front, eyes prominent, ocelli with a distinct roundish impression before each, neck thickly punctured; antennæ moderately long, dark, with first joint clear red, and the three or four following joints usually lighter than the rest, or reddish; penultimate joints slightly transverse; thorax broader than long, narrower than elytra, rounded and somewhat widened in front and narrowed slightly but perceptibly behind, posterior angles sharp and distinct, disc with two strongly marked furrows or foveæ, rather thickly and strongly punctured; the space between the impressions, however, is often more or less smooth; elytra at least twice as long as thorax, strongly, but scarcely, if at all, rugosely punctured; hind body very finely punctured; legs testaceous. L. $3\frac{1}{2}-4$ mm

In decaying vegetable rubbish, at sap of trees, in haystack refuse, decaying fungi and sea-weed, in carcases, &c.; abundant throughout the kingdom.

III. rugulipenne, Rye. Of the same general form, appearance, and size as the preceding, but differing in the following points: the antennæ are shorter and entirely pale, the elytra longer and densely rugulose; the neck is alutaceous and has a very few indistinct punctures, and the thorax is almost impunctate at least on disc; this latter character, however, is somewhat variable, as I have specimens in which the thorax is distinctly punctured, but more closely and finely than in *H. rivulare*; the species, however, may be known by its general colour, which is ferruginous brown or reddish, with the hind body and sometimes part of the elytra darker; in some points the species resembles *H. riparium*, but is at once distinguished by its colour, longer antennæ, and rugose elytra. L. $3\frac{1}{2}$ mm.

In decaying sea-weed, carcases on the shore, &c.; very local; Mr. Rye believed he captured the specimen from which he described his species at Gravesend, but it has

not since been taken in the London district; it appears to be rather common in the Liverpool district, Wallasey, New Brighton, Hoylake, &c.; it is also abundant at Hartlepool; Scotland, very rare, Dee district.

H. læviusculum, Gyll. Closely allied to *H. rivulare*, but distinguished by having the head and disc of thorax impunctate or almost impunctate, the sides of the thorax even less dilated in front, and the elytra more finely punctured; in well-marked specimens the head and disc of thorax are quite smooth and the elytra very finely punctured, but in these characters the insect is somewhat variable, although, as a rule, there is no difficulty in distinguishing the species; varieties often occur in which the thorax is reddish and the elytra reddish-brown; occasionally the whole body is reddish brown with the elytra lighter; the sculpture of the elytra will, however, at once separate it from *H. rugulipenne*, which these specimens somewhat resemble in colour. L. $3\frac{1}{2}$ –4 mm.

In decaying sea-weed; common all along the south-eastern and southern coasts, and in the Isle of Wight; Barmouth; Lancashire coast; Scarborough and Yorkshire coast; Northumberland and Durham coast, common; Scotland, on the coast, local, but found as far north as the Shetland Islands; not recorded as yet from Ireland, but it is probably common: this species often occurs in company with the preceding, and hence mistakes are liable to arise.

H. septentrionis, Thoms. (*impressum*, Kr., *languidum*, Mäkl.). This species also is closely allied to *H. rivulare*, and may probably be only a northern variety of that insect; it differs in being much more strongly and closely punctured, and less shining, with the elytra narrower in proportion to the thorax, the sides of which are rounded; the five basal joints of the antennæ are red, whereas in *H. rivulare* the first or first two only are red, but the latter insect varies somewhat in this respect; from *H. riparium* it may be distinguished by its much stronger punctuation. L. 3 mm.

Very rare, Scotland, Highlands, Tay and Clyde districts; the species was first recorded as British by Mr. Henderson (Ent. Monthly Mag. ii. p. 205), who took a specimen in the Isle of Arran in August, 1864, and Dr. Sharp subsequently found it among species taken by himself at Rannoch.

H. riparium, Thoms. (*impar*, Rey). This is another of the close allies of *H. rivulare*; it is on the average a little smaller, and may best be distinguished by the shape of the thorax, which is not dilated in front and has the sides almost straight to base; the head is more sparingly punctured, and the neck is alutaceous and scarcely at all punctured; the large foveæ on thorax are deeper in front, and the disc is more sparingly punctured; the elytra are longer, pitchy black, and less strongly punctured. L. $3-3\frac{3}{4}$ mm.

In decaying sea-weed, under refuse, &c., on the shore; rather local; Sheerness; Whitstable; Pegwell Bay; Isle of Wight; Weymouth; South Devon; Wallasey; Cheshire; Manchester district; Northumberland district, "plentiful on the sea-coast amongst algæ" (Bold); Scotland, maritime, local, Clyde and Forth districts; Ireland, Waterford, and Newcastle co. Down. This species appears to be almost, if not

quite, exclusively maritime; I have, however, records from Dulwich and Glanvilles Wootton, Dorset, but it is possible that mistakes may arise among these closely allied insects.

H. Allardi, Fairm. Pitchy black or pitchy brown with the shoulders of the elytra and the apex and margins of hind body lighter; the colour, however, is variable, the sides of thorax and hind body (and occasionally almost the entire elytra) being reddish testaceous in some specimens; head thickly punctured, smoother in front, with a distinct deep impression before ocelli; antennæ dark with more or less of the basal joints red, penultimate joints slightly transverse; thorax transverse evidently although slightly widened in front and contracted behind, closely but variably punctured, with depressions on disc distinct; elytra at least twice as long as thorax, closely and moderately strongly and somewhat longitudinally punctured, more closely at apex; hind body very finely punctured or shagreened, dull; legs testaceous. L. $2\frac{1}{2}$ mm.

In haystack refuse, in carcasses, under old bones, &c.; also in bird-cages and pigeon-cotes; local and not common; precincts of Guy's Hospital, London (Sharp); Eltham, Kent; Margate; Smallheath, Birmingham, under bones (Blatch); Manchester; Northumberland district, "of occasional occurrence in several localities; often crawling on the top of old walls" (Bold); Scotland, local, in carcasses, Solway, Tweed, and Clyde districts; Ireland, near Waterford (Power).

In shape this species much resembles *H. rivulare*, but may be at once distinguished by its smaller and narrower form, closer punctuation, and duller appearance; mature and normal specimens may be at once known by the distinct light yellowish-testaceous patch at the shoulders of elytra, but, as said before, the colour is very variable in many of the *Homalia*.

H. exiguum, Gyll. The smallest species of this section, and one of the smallest of the genus; deep black, moderately shining; head thickly and deeply punctured, with strong and deep impressions before ocelli and a strong oblong depression on each side near antennæ nearly meeting these; antennæ entirely pitchy black, moderately long, somewhat thickened towards apex, with penultimate joints scarcely transverse; thorax transverse, one and a half times as broad as long, narrower than elytra, a little rounded in front and narrowed behind, posterior angles right angles, upper surface thickly and deeply punctured, depressions on disc strong; elytra more than double as long as thorax, very thickly and strongly and slightly rugosely punctured; hind body almost impunctate, unicolorous black; legs testaceous, with femora more or less pitchy. L. $1\frac{1}{2}$ –2 mm.

In dead leaves, carcasses, &c.; rare; Cobham, Richmond Park, Loughton, Shirley, Lee; Sherwood Forest; Lincoln; Scarborough; Northumberland district, rare; Scotland, rare, Solway district.

H. oxyacanthæ, Grav. A little larger on the average than the preceding, and easily distinguished from it by the evidently less close

punctuation of the elytra and the feebler impressions on the head; colour black, with elytra often lighter or darker pitchy brown or even brownish testaceous; thorax more transverse than in the preceding species almost double as broad as long, with the posterior angles blunt, and the impressions on disc not deep; elytra plainly more than double as long as thorax; hind body scarcely punctured, very finely shagreened, almost always lighter at apex; legs testaceous. L. 2 mm.

In dead leaves, haystack refuse, decaying sea-weed, &c.; occasionally by sweeping; local; London district, not uncommon, and generally distributed; Dover; Wicken Fen; Birmingham district; Sherwood Forest; Robins Wood, Repton; Northumberland district, common (Bold); Scotland, not common, but widely distributed, Solway, Tweed, Forth, Dee, and Moray districts; Ireland, recorded from Armagh, but I do not feel sure as to the identity of the specimens.

H. excavatum, Steph. (*fossulatum*, Er.). Deep black, rather shining, front parts duller than hind body owing to their close punctuation; head thickly, finely, and deeply punctured, with two large deep longitudinal impressions before ocelli, almost meeting the strong impressions near antennæ (this is seen more plainly if the insect is held a little on one side while examined); antennæ reddish brown or reddish, often darker at base, rather long, penultimate joints transverse; thorax evidently narrower than elytra much broader than long, with two comparatively small, but very deep, furrows on disc, and a very strong and deep depression on each side near margins; punctuation rather thick but variable, posterior angles sharp right angles; elytra about twice as long as thorax, thickly and rather deeply punctured; hind body smooth and shining; legs reddish testaceous. L. 3-3½ mm.

In dead leaves, haystack and vegetable refuse, &c.; common and generally distributed throughout England and Scotland as far north as the Shetland Islands; probably equally common in Ireland.

H. cæsum, Grav. (*impressum*, Heer, *corticinum*, Mots.). This and the succeeding species may be at once distinguished from all their allies by having only a narrow impressed line before the ocelli; colour black, rather dull, with the elytra pitchy-black or brownish; head very closely punctured, with the clypeus smooth and shining; antennæ reddish, darker at base, penultimate joints transverse; thorax narrower than elytra, thickly punctured, with central furrows distinct; elytra quite double as long as thorax, very thickly and rather strongly punctured; hind body extremely finely punctured, dull; legs lighter or darker testaceous according to the colour of the rest of the insect. L. 2-2½ mm.

In haystack and vegetable refuse, decaying fungi, debris of fern, &c.; common and generally distributed throughout the greater part of the kingdom.

H. nigriceps, Kies. This is a very unsatisfactory species, and is very probably only a variety of the preceding; it may, as a rule, be superficially distinguished with ease by its black head and the rufo-testaceous colour of the rest of the body, but it seems to vary in this respect

and sometimes not to differ materially in colour from light examples of *H. cæsum* ; as regards structural distinctions, it is broader than this latter species, with the elytra shorter, and the sides of the thorax less rounded; these differences, however, appear to be exceedingly slight. L. $2\frac{1}{2}$ mm.

Found under the same circumstances as the preceding; very local; London district, not uncommon; Darenth Wood, Strood, Faversham, Shirley, Richmond Park, Reigate, Mickleham, Birdbrook, Cowley (in refuse hay in cow-shed (Power)); Littlington (Sussex); Scotland, in vegetable refuse, rare, Forth district.

Section II. (*Phlæonomus*, Heer.)

This section contains two minute insects, which live under bark, and are so extremely closely allied that it is somewhat doubtful whether they ought to be regarded as separate species; they certainly appear to differ in habitat, one being found under bark of fir trees, and the other under bark of beech, birch, &c., but it has hardly been proved conclusively that this is invariably the case.

- I. Punctuation of elytra scarcely visible; antennæ yellow with apical joints brownish H. PUSILLUM, Grav.
- II. Punctuation of elytra evident; antennæ entirely yellow H. PUNCTIPENNE, Thoms.

H. pusillum, Grav. (*abietinum*, Thoms.). Depressed, parallel-sided, head black, hind body blackish-brown, thorax and elytra dull brownish-red; sometimes the whole upper surface, except the head, is reddish; head very closely punctured, except in front where it is smooth and shining; antennæ yellow, brownish at apex, rather short, with penultimate joints strongly transverse; thorax not much narrower than elytra, very transverse, slightly rounded in front and narrowed behind, posterior angles right angles, with dorsal foveæ plain; elytra about double as long as thorax very delicately alutaceous, and scarcely visibly punctured; hind body very finely shagreened; legs testaceous. L. $1\frac{1}{2}$ – $1\frac{3}{4}$ mm.

Under bark of fir; common and generally distributed throughout England; Scotland, common, Solway, Tay, and probably other districts.

H. punctipenne, Thoms. Almost exactly resembling the preceding, from which it was separated by Thomson, but rather more shining in appearance, with the antennæ quite yellow, more thickened at apex, and with the third joint somewhat shorter; the anterior angles of the thorax are somewhat more rounded, and the dorsal foveæ are larger and deeper; the chief character, however, lies in the elytra which are delicately alutaceous as in the preceding species, but besides this are very finely and diffusely, but somewhat distinctly punctured if viewed under a high magnifying power. L. $1\frac{1}{2}$ – $1\frac{3}{4}$ mm.

Under bark of birch and beech, and perhaps of other deciduous trees (Thomson's "löftrad"); apparently as common and widely distributed as the preceding both in England and Scotland, but often confused and mixed with it in our collections.

In the male the seventh ventral segment of hind body appears to be rather strongly emarginate.

Section III. (*Xylodromus*, Heer.)

This section contains one species only, which is chiefly distinguished from its allies by the very long terminal joint of the maxillary palpi; it is about the size of *H. excavatum*; it may be distinguished by its rather depressed form, shining appearance, and rather long, almost subquadrate thorax; the dorsal depressions of thorax are much less distinct than in the *H. rivulare* group, but much more evident than in *H. rufipes* and its allies, which latter, moreover, have the thorax more convex and quite differently shaped; the species is very rare, and is not found except in Scotland; it occurs under bark.

H. monilicorne, Gyll. Rather depressed, shining black, parallel-sided, elytra sometimes pitchy or pitchy brown; head very sparingly punctured, with distinct impressions before ocelli, smooth in front; antennæ pitchy, with first five joints red, penultimate joints transverse; thorax rather variable in length, but not as transverse as in any of its allies, sometimes almost subquadrate, with sides rather strongly rounded in front, and contracted and sinuate behind, posterior angles almost right angles, upper surface scarcely convex, strongly and very diffusely punctured, with dorsal foveæ shallow; elytra double as long as thorax moderately closely but not very strongly punctured; hind body extremely finely shagreened, usually lighter at apex; legs testaceous. L. $3-3\frac{1}{4}$ mm.

Under bark, Highlands, rare, Tay and Dee districts. It was first taken in Britain by Mr. Foxcroft at Rannoch in 1855.

Section IV. (*Phyllodrepa*, Thomson.)

This section contains seven species, which differ considerably in size, but are easily distinguished from all the other species of *Homalium*, except those belonging to the sub-genus *Etheothassa*, by their smooth and even thorax, which has the usual dorsal foveæ either entirely absent or very obsolete; they are found under various conditions, in haystack and vegetable refuse, under bark, &c., and one or two are often found in flowers: it is doubtful whether one or two of them are separate species and ought not rather to be considered as varieties.

I. Head with distinct impressions before ocelli; size larger ($3-4\frac{1}{2}$ mm.).

i. Antennæ more or less dark; punctuation of elytra evidently finer and closer; size smaller.

1. Length 4 mm.; antennæ shorter, dark with apical joints often lighter; thorax less narrowed in front

H. RUFIPES, Fourc.
(*florale*, Payk.).

2. Length 3 mm.; antennæ longer, dark with first five joints red; thorax more narrowed in front. *H. NIGRUM*, Grav.
- ii. Antennæ entirely ferruginous with base lighter; punctuation of elytra evidently stronger and coarser; size larger *H. SALICIS*, Gyll.
- II. Forehead without impressions before ocelli*; size very small (2-2½ mm.).
- i. Elytra variable in colour, pitchy testaceous or black; thorax dark.
- A. Punctuation stronger and coarser not distinctly strigose.
- a. Antennæ very short and stout; size larger, colour darker *H. BREVICORNE*, Er.
- b. Antennæ much longer; size smaller, colour lighter *H. GRACILICORNE*, Fairm.
- B. Punctuation feebler, distinctly strigose . . . *H. VILE*, Er.
- ii. Elytra entirely or more or less testaceous; thorax red.
- A. Punctuation of elytra feebler; size smaller; thorax less convex with dorsal foveæ plainly traceable *H. VILE*, v. *HEERII*, Heer.
- B. Punctuation of elytra stronger; size larger; thorax very convex, with dorsal foveæ wanting. *H. IOPTERUM*, Steph.

H. rufipes, Fourc. (*florale*, Payk., *ruficorne*, Steph., *maculicorne*, Heer). Black, rather shining, exceedingly finely pubescent; head with distinct but small impressions before ocelli, rather sparingly punctured behind, smooth and shining in front; antennæ pitchy black, more or less ferruginous towards apex, gradually and slightly thickened, penultimate joints not strongly transverse; thorax rather narrower than elytra, convex, with dorsal foveæ very obsolete or absent, sides finely bordered, rounded rather strongly in front, and slightly narrowed behind, rather thickly and finely punctured, posterior angles somewhat blunt but distinct; elytra not quite double as long as thorax, rather strongly and thickly punctured in irregular rows; hind body very finely punctured or shagreened; legs red, femora sometimes darker. L. 4 mm.

In haystack refuse, &c.; often found in flowers, and, rarely, in birds' nests or under bark; widely distributed and not uncommon in many parts of the country; London district, rather common; Mickleham, Caterham, Sheerness, Forest Hill, Shirley, Whitstable, &c.; Norfolk; Suffolk; Devonshire; Somersetshire; Swansea; Midland districts, rather common; Chat Moss; Sherwood Forest; Scarborough; Manchester; Liverpool; rarer further north; Northumberland district, not common, on flowers of *Umbellifera*; Scotland, in flowers, rare, Solway, Tweed, and Tay districts.

H. nigrum, Grav. (*salicinum*, Gyll., *atrum*, Heer). Very closely allied to the preceding, of which it is considered by some authors to be only a variety; it is, however, rather smaller, and differs in the following particulars: the antennæ are longer, with the first five joints red and the remainder black; the thorax is rather shorter and more narrowed in front, with the sides more widely margined and the margins pitchy; the

* See p. 410, foot-note.

elytra are rather longer, and their punctuation is more generally inclined to run into striæ; the colour of the antennæ appears to be one of the most important characters. L. 3 mm.

Very rare; Oxfordshire (Rev. A. Matthews): it appears to be scarce on the Continent.

H. salicis, Gyll. (*crassicorne*, Matth.). This very distinct insect is the largest species in the section; it is of much the same build and general appearance as *H. rufipes*, but may be easily distinguished by the entirely ferruginous red antennæ, which are lighter at base, and the evidently stronger and less close punctuation of the elytra; the margins of the thorax are much stronger, somewhat raised, and reddish, and the hind body is more evidently, although very finely, punctured; the legs are of a somewhat clearer red colour. L. $4\frac{1}{2}$ mm.

In haystack refuse, &c.; very rare; Bearsted, near Maidstone (Gorham); Littlington, Sussex (Power); New Forest; Oxfordshire (Matthews); Wicken Fen and Sherwood Forest (Blatch); Waddington, Lincolnshire (H. Matthews); the specimen from the last-mentioned locality was introduced by Mr. Matthews as *H. crassicorne*, n. sp., but Mr. Rye was of opinion that it was only a "depauperized immature example" of *H. salicis*.

H. vile, Er. A very small, depressed, parallel-sided species; lighter or darker pitchy black, shining, exceedingly finely pubescent; head more or less closely punctured, almost smooth in front, antennæ pitchy with the first five or more basal joints testaceous red, joints 6–10 strongly transverse; thorax in front almost as broad as elytra, scarcely transverse, strongly narrowed behind, posterior angles almost right angles, upper surface only slightly convex, thickly, deeply, and distinctly punctured, with dorsal furrows shallow or obsolete, but usually more or less distinctly traceable; elytra about double as long as thorax, very thickly and moderately deeply punctured, distinctly strigose; legs light testaceous. L. 2 mm.

Under bark; generally distributed and common throughout England and Scotland, and probably also in Ireland.

V. Heerii, Heer. The specimens introduced by Mr. Blackburn (Ent. Mo. Mag. iii. p. 93) as *H. Heerii* appear to be only a highly coloured variety of *H. vile*; they are entirely testaceous with the head and apex of elytra and hind body darker; Mr. Blackburn took his specimens in fungi on rotten birches near Rannoch, and Dr. Power subsequently captured the same insect at Balmuto in Fifeshire; it has also occurred at Aviemore.

H. brevicorne, Er. Closely allied to *H. vile*, from which it may be known by its decidedly larger size, more robust and broader build, more shining thorax, stouter and shorter antennæ, and stronger punctuation; the punctuation of the elytra is more confused, almost rugose in places, and scarcely, if at all, strigose; when fully mature it appears to

bear a superficial resemblance to a small *H. monilicorne*, but is much more closely related to *H. vile*; its very short antennæ will distinguish it from the allied species. L. $2\frac{3}{4}$ mm.

Under bark, in rotten wood, &c.: introduced by Rev. A. Matthews on the authority of a specimen taken by him in 1862, at Gumley, Leicestershire: Mr. Rye refers to this species some specimens taken by Mr. J. Hardy, at Wooler, Northumberland district, in fungus on alders, and also the specimens taken by Dr. Power, at Balmuto, Fifeshire, which have been distributed by him as *H. gracilicorne*: I have not seen the former specimens, but he can hardly be right with regard to Dr. Power's specimens, which have the antennæ quite as long, if not longer, than *H. vile*. Dr. Sharp records *H. brevicorne* as rare in Scotland, in the Solway, Forth, and Dee districts.

***H. gracilicorne*, Fairm.** This species closely resembles *H. vile*, but differs by being larger, by the antennæ having the first five joints only testaceous, and by the somewhat stronger punctuation of the head and thorax; the latter is much rounded at the sides in front, and the anterior angles are scarcely marked, the impressions on the disc are almost absent, the punctuation of the elytra is coarser but less close, and the elytra are less black, and a little reddish at base and apex, with the striæ hardly at all marked; compared with *H. brevicorne* it is smaller, narrower, lighter, with the dorsal depressions on the thorax considerably more obsolete, and the sides of the same more rounded and less contracted behind; the penultimate joints of the antennæ are not so transverse, the antennæ themselves being longer, and the punctuation of the elytra is not so close; the hind body also is duller. L. $2\frac{1}{2}$ mm.

Under fir-bark; rare; one specimen from the London district (Rye); Scotland, Balmuto, Fifeshire, in numbers (Power): Dr. Power's specimens appear to agree well with Fairmaire's description; there is, however, considerable confusion with regard to these last two or three species; according to the catalogue of Heyden, Reitter, and Weise, the *H. gracilicorne* of Fairmaire, which they mention as from Britain, is a different insect from the *H. gracilicorne* of Rye, which is considered by them to be synonymous with *H. vile*, Er.; this, however, can hardly be correct, as Mr. Rye was too keen an observer to have confused the species in this fashion.

***H. iopterum*, Steph. (*lucidum*, Er.).** Reddish testaceous with the head black, the hind body more or less broadly pitchy towards apex, or entirely dark, and the elytra with suture and apex, and sometimes the greater part of its surface black or bluish black; head rather thickly and strongly, but variably punctured; antennæ short and stout, entirely red, or occasionally darker towards apex, penultimate joints strongly transverse; thorax almost as broad as elytra, transverse, but not strongly so, rounded at sides, posterior angles right angles, thickly and moderately punctured, dorsal foveæ obsolete or absent; elytra scarcely twice as long as thorax, strongly and thickly punctured in distinct striated lines; hind body very finely alutaceous and punctured. L. $2\frac{1}{2}$ – $2\frac{3}{4}$ mm.

Under bark, in cut grass, on flowers, &c.; local; London district, not uncommon, and generally distributed; Glanvilles Wootton; New Forest; Devonshire; Dean Forest; Montgomery; Yardley and Knowle, near Birmingham; Salford Priors; Sherwood Forest; Robins Wood, Repton; Lincoln; Manchester district; rarer

further north; Northumberland district, rare; Scotland, scarce, Tweed, Forth, and Dee districts.

Section V. (**Phlœostiba**, Thomson.)

This section contains two minute, shining, flat insects, which live under bark; they are very closely allied to one another; the margins of the hind body make a considerably wider angle with its disc than in the other sections.

- I. Form broader; elytra fusco-testaceous; thorax with two impressions near anterior margin **H. PLANUM**, Payk.
 II. Form narrower; elytra fuscous; thorax without impressions in front **H. PINETI**, Thoms.

H. planum, Payk. Depressed, black, shining, with the elytra fuscous-testaceous, sometimes yellowish, and the thorax occasionally pitchy-red, almost without pubescence; head triangular, with distinct impressions before ocelli, rather closely punctured behind, almost smooth in front, eyes very prominent; antennæ dark with the five or six basal joints reddish-yellow, joints 6-10 about equal in breadth, very strongly transverse; thorax not much narrower than elytra, very transverse, somewhat plainly narrowed behind, posterior angles almost right angles, upper surface closely and distinctly punctured with dorsal impressions more or less obsolete, but traceable; elytra about twice as long as thorax, very finely and irregularly, but distinctly punctured, sometimes a little rugose; hind body very finely shagreened; legs testaceous. L. 2-2 $\frac{2}{3}$ mm.

Under bark and at sap of freshly cut trees, or about *Cossus* burrows; local, but not uncommon; London district, generally distributed; Norfolk; Suffolk; Hertford; Dorset; Devonshire; Midland districts, Tewkesbury, Bewdley, Sherwood Forest, &c.; not recorded from any locality further north in England; Scotland, rare, at the oozing sap of the birch tree, Tay district only.

H. pineti, Thoms. (*lapponicum*, Zett., *subtile*, Kr., *conforme*, Kr.). Very like the preceding, but smaller and distinctly narrower, with the elytra considerably darker; the thorax has no impressions on its anterior margin (a character that will easily distinguish it), and the elytra are evidently more finely and sparingly punctured. L. 2-2 $\frac{1}{4}$ mm.

Scotland, Highlands, under bark of logs of Scotch fir; local and not common, Tay, Dee, and Moray districts; first taken by Dr. Sharp at Rannoch.

The name *lapponicum*, Zett., has priority, but cannot stand, as Mannerheim had, prior to Zetterstedt, described another *Homalium* under that name.

Section VI. (Sub-Gen. **Etheothassa**, Thomson.)

This section contains three species, the first two of which are found in haystack refuse, bottoms of corn bins, &c., while the last appears to occur in rotten wood; they may be distinguished superficially by their

rather long parallel form, convex thorax, and reddish or reddish-testaceous appearance.

- I. Upper surface pitchy, with elytra lighter; thorax even.
 - i. Elytra shiny, less closely and evidently strigosely punctured *H. CONCINNUM*, Marsh.
 - ii. Elytra dull, extremely closely and not strigosely punctured *H. DEPLANATUM*, Gyll.
- II. Upper surface entirely testaceous, with the head and space round scutellum fuscous; thorax usually furnished with obsolete impressions on disc *H. TESTACEUM*, Er.

H. concinnum, Marsh. Elongate, parallel, very sparingly and finely pubescent, pitchy black or pitchy red, with the elytra lighter or darker reddish or reddish testaceous; the apex and margins of hind body and margins of thorax are also more or less plainly reddish; head almost as broad as thorax, thickly and finely punctured; antennæ red, with apical joint somewhat lighter, short and rather stout, with penultimate joints rather strongly transverse; thorax a little narrower than elytra, transverse, convex, finely and closely, but distinctly punctured, with sides rounded in front and narrowed behind, posterior angles almost right angles; elytra not quite double as long as thorax, thickly and finely punctured, distinctly strigose; hind body very finely, but visibly, punctured; legs red. L. 3 mm.

In haystack and vegetable refuse; common and generally distributed throughout England; recorded as very common in the Northumberland district, but, according to Dr. Sharp (Scot. Nat. iii. 135) it is not common in Scotland, Tweed, Forth, and Tay districts; Ireland, Waterford, Galway, &c.

Specimens of this insect are occasionally found which are quite dark; these appear to be the *v. fuliginosum*, Heer.

H. deplanatum, Gyll. This species closely resembles the preceding in general appearance, but may at once be distinguished by its duller appearance, and the evidently closer punctuation of the elytra, which is not strigose; it is a little more pubescent than *H. concinnum*, and the colour of the elytra is more uniformly reddish testaceous; the head is rather narrower in proportion to the thorax, and the thorax is somewhat longer, but these characters are not very evident; both in this and the preceding species the dorsal foveæ are usually absent, but may occasionally be distinctly traced. L. 3 mm.

In haystack refuse, &c.; not common; Croydon, Tonbridge, Cowley; Norfolk; Suffolk; Littleington, Sussex; Knowle; Coleshill; Cannock Chase; Montgomery; Repton, Burton-on-Trent; Sherwood Forest; not recorded from any locality further north in England, but it probably occurs; Scotland, local, Forth and Clyde districts; Ireland, Dublin, Waterford, and Belfast.

H. testaceum, Er. Sub-depressed, rufo-testaceous, with the head and scutellary region infuscate, the head, thorax, and elytra thickly punctured, and the hind body (which is rather dilated at the apex) sparingly and most delicately punctured; from *H. concinnum* it may be known by its shorter form, much smaller and narrower thorax, and invariably paler colour, and from *H. deplanatum* by its colour, longer

antennæ, less evident pubescence, and distinctly stronger punctuation. L. $2\frac{3}{4}$ –3 mm.

In rotten wood; very rare; three specimens were taken in the summer of 1862 near Gumley, Leicestershire, by the Rev. A. Matthews.

Section VII. (**Acrolocha**, Thomson.)

This section contains one species, which in many points is allied to *Hapalaræa pygmæa*, but differs in having the elytra punctured in distinct rows, the front of the head without an elevated raised line near eyes, and the tibiæ rather strongly spinose; it is found in vegetable refuse, &c.

H. striatum, Grav. Oblong, more or less ovate, dark pitchy black, with the elytra lighter or darker pitchy brown; head without raised lines near eyes, moderately closely punctured; antennæ as long as head and thorax, with the last five joints forming a rather distinct club, basal joint red, second pitchy, the next three or four reddish, and the rest dark; thorax twice as broad as long, convex, rather feebly rounded at sides, and scarcely narrowed behind, posterior angles almost right angles, disc diffusely and rather plainly punctured, with a more or less distinct central channel, and a shallow, sometimes obsolete, impression on each side at base; elytra more than double as long as thorax, punctured somewhat irregularly in straight longitudinal striæ, interstices alutaceous; hind body short, ovate, much acuminate at apex, very finely shagreened, dull, usually lighter at apex; legs testaceous. L. $1\frac{1}{2}$ –2 mm.

Male with the anterior tarsi dilated, and the seventh ventral segment of hind body truncate at apex.

In haystack and vegetable refuse, dead leaves, &c.; occasionally by sweeping; local, but not uncommon in many places; Esher, Dulwich, Forest Hill, Cowley, Caterham, Purfleet, Whitstable, Sheerness; Norfolk; Maidstone; Deal; Pegwell Bay; Hastings; New Forest; Plymouth; Exeter; Swansea; Knowle; Wicken Fen; Matlock; Chat Moss; Wallasey, Cheshire; Northumberland district, rare (Gosforth, Boldon Flats, and Wallington); Scotland, local, Solway and Tweed districts; Ireland, Galway.

HAPALARÆA, Thomson.

This genus comprises the single species formerly known as *Homalium pygmæum*; the absence or almost total absence of spines on the tibiæ and its distinct male characters will serve to characterize it; it is easily distinguished by its entirely or almost entirely reddish-testaceous colour, short oblong ovate form, and the raised line near eyes; from *Acerulia* its shape will at once separate it; it occurs in fungi, under bark, &c.

H. pygmæa, Gyll. Oblong ovate, slightly convex, finely pubescent, entirely reddish-testaceous or brick-red, with the head and apex of elytra sometimes a little dark; head thickly punctured, with no visible im-

pressions before ocelli, side margins of forehead plainly elevated near eyes; antennæ reddish-testaceous, gradually thickened towards apex, with penultimate joints more or less strongly transverse; thorax rather narrower than elytra, almost double as broad as long, rounded in front and scarcely contracted behind, posterior angles distinct, thickly and rather deeply punctured, without furrows on disc; elytra more than twice as long as thorax, rather convex, finely and closely, but distinctly punctured; hind body ovate, very finely shagreened; legs testaceous. L. $2\frac{1}{2}$ mm.

Male with the sixth ventral segment of hind body furnished in middle with a deflexed bifid tooth; posterior trochanters very large, securiform.

In fungi, under bark, &c.; occasionally on the wing, or by sweeping; not common; Sheerness, Birch Wood, Darenth Wood, Caterham, Mickleham, Addington, Tonbridge, Cowfold, Esher, Bromley; Glanvilles Wootton; Alverstoke; New Forest; Shrewsbury; not recorded from the northern districts of England; Scotland, very rare, Tay district ("Rannoch," Buchanan White).

ACRULIA, Thomson.

This genus comprises one species, which was formerly included under *Homalium*, but has been separated by Thomson; its peculiar short inflated shape will at once separate it; it is extremely rare, and is found very sparingly under bark in the Northumberland district, and in Scotland.

A. inflata, Gyll. Broad oval, very convex, almost globose; pitchy brown or reddish brown with the sides of thorax and hind body and the suture sides and shoulders of the elytra lighter; the colour, however, is variable, and the elytra are often dark unicolorous pitchy red; head rather thickly punctured, smooth in front, with a small and sometimes indistinct impression near ocelli, forehead raised near eyes as in *H. pygmæa*; antennæ red or reddish brown with the four last joints strongly transverse; thorax rather narrower than elytra, double as broad as long, more strongly narrowed in front than behind, with side margins finely crenulate, depressed at sides, disc very convex, even, punctuation rather thick and deep; elytra more than twice as long as thorax thickly, deeply, and rather strongly punctured; hind body very short, very finely shagreened, somewhat shining; legs testaceous. L. 2 mm.

Under bark; very rare; Northumberland district, Ravensworth Woods (J. Hardy); Scotland, very rare, Tay and Dee districts; a very few specimens have been taken, for one of which I am indebted to Mr. J. J. King, of Glasgow, who kindly gave me one of his only pair.

EUSPHALERUM, Kraatz.

This genus forms a natural transition between *Homalium* and *Anthobium*, being closely connected with the former by its general appearance and form and its spinose tibiæ, and with the latter by its stout legs and

dilated front tarsi ; it contains a few European species, and one from the Caucasus district ; our single species occurs in the flowers of the primrose in spring and early summer.

E. primulæ, Steph. (*triviale*, Er., *cribrosum*, Heer). Rather elongate and parallel-sided, with head and hind body pitchy black, thorax pitchy black or brownish, and elytra and apex of hind body lighter or darker yellowish brown ; head with eyes (which are very prominent) nearly as broad as thorax, with a small impression before ocelli, rugose and rather strongly punctured at base, smoother in front ; antennæ reddish testaceous with apex darker, rather long, penultimate joints not transverse ; thorax slightly narrower than elytra, subquadrate, not strongly transverse, with posterior angles blunt but distinct, rather diffusely and somewhat strongly punctured, and finely alutaceous between punctures ; elytra long, rather strongly punctured ; hind body very finely punctured or shagreened ; legs testaceous. L. 2–3 mm.

In flowers of the primrose, &c. ; local ; Chatham, Mickleham, Caterham, Shirley, Reigate, Maidstone ; Hastings ; Isle of Wight, Ventnor, &c. ; Bewdley ; Cheshire ; Yorkshire ; Northumberland district, in flowers of primrose, guelder-rose, and hawthorn, plentiful (Gibside, &c.) ; Scotland, very local, Tweed and Forth districts.

ANTHOBIUM, Stephens.

This genus contains upwards of a hundred species, which inhabit the temperate and cold countries of the Old and New Worlds ; only one species is found as far south as Madeira ; they are distinguished from *Homalium* by their pubescent (and not spinose) tibiæ, stouter legs, and dilated tarsi ; as their name implies, they are found in flowers ; there are five British species, one of which is exceedingly rare.

I. Thorax and hind body black or pitchy black.

- i. Elytra longer, pitchy brown *A. MINUTUM*, F.
- ii. Elytra shorter, testaceous *A. LAPPONICUM*, Mannh.

II. Thorax and elytra testaceous.

- i. Hind body testaceous in both sexes ; punctuation of thorax very close ; length $1\frac{1}{2}$ –2 mm. *A. OPHTHALMICUM*, Payk.
- ii. Hind body black or pitchy black in male ; punctuation of thorax more diffuse.
- A. Length $1\frac{1}{2}$ –2 mm. ; metasternum black *A. TORQUATUM*, Marsh.
- B. Length $\frac{3}{4}$ –1 mm. ; metasternum testaceous . . . *A. SORBI*, Gyll.

A. minutum, F. (*brevicolle*, Heer, *appendiculatum*, Heer). Black, rather shining, hind body pubescent, elytra fuscous ; head with a very small, almost invisible, impression before ocelli, finely shagreened, and rather sparingly punctured, eyes very prominent ; antennæ rather long and stout, with the first five or six joints testaceous and the rest dark, penultimate joints not contiguous, not or scarcely transverse ; thorax transverse, convex, rounded in front, and feebly narrowed behind, with posterior angles blunt, very finely alutaceous, and finely and diffusely punctured ; elytra nearly three times as long as thorax, widened behind

and dehiscent, moderately strongly punctured; hind body almost covered by elytra, strongly acuminate at apex, which is usually lighter; legs testaceous. L. 2 mm.

Damp places, in flowers; local, but common where it occurs; Haslemere, Surrey; Aylsham; Norfolk; Suffolk; Glanvilles Wootton; Devonshire; Swansea; Knowle; Bewdley; Hartlebury; Lincoln; Manchester (rape, cabbage, and hawthorn); Northumberland district; Scotland, common, both Lowlands and Highlands as far north as the Moray district.

A. lapponicum, Mannh. (*flavipenne*, Er.). Closely allied to the preceding, but distinguished by its shorter testaceous elytra, which are only about twice as long as thorax, by the thorax being more delicately and less thickly punctured, foveolate at base, and slightly channelled on disc; in the female the sutural angle of elytra is produced. L. 2 mm.

In flowers of *Caltha palustris*; very rare; a single specimen has been taken at Rannoch by Dr. Sharp: it appears somewhat doubtful whether it is anything more than a variety of *A. minutum*.

A. ophthalmicum, Payk. Colour uniform testaceous, upper surface rather dull, scarcely pubescent; antennæ slightly brownish at apex; head thickly, deeply, and distinctly punctured; thorax very finely punctured, with anterior and posterior margins almost equal, posterior angles blunt, but distinct; elytra about double as long as thorax, thickly and deeply punctured, of a lighter colour than the rest of the body; hind body very finely shagreened, testaceous in both sexes. L. $1\frac{1}{2}$ –2 mm.

In flowers; generally distributed and common throughout England and Scotland, and probably Ireland.

A. torquatum, Marsh (*scutellare*, Er., *mucronatum*, Steph.). This species may easily be distinguished from the preceding by the colour of the hind body, which is black in the male and partially black in the female, and also by the more diffuse (although very fine) punctuation of the thorax; from *A. sorbi* it may at once be distinguished by its much larger size and black metasternum; the elytra also are somewhat more thickly punctured, and the hind body is more evidently punctured and duller. L. $1\frac{1}{2}$ –2 mm.

Male with two small red-brown prominences in middle of hind margin of sixth ventral segment of hind body.

In flowers; generally distributed in England and Scotland, and probably in Ireland. I have found it by far the most abundant species of the genus.

A. sorbi, Gyll. (*silesiacum*, Letz). A very minute species, and the smallest of the Homaliinæ that we possess; it is coloured much as the preceding, but is usually lighter, and the hind body is pitchy-black or black in the male, and entirely rufo-testaceous or rufous in the female; the metasternum is testaceous, a point that will at once distinguish it from *A. torquatum*; its smaller size and more distinctly punctured

thorax, together with the colour of the hind body in male, will serve to prevent any confusion with *A. ophthalmicum*. L. 1 mm.

In flowers; local, but abundant where it occurs; Mickleham, Caterham, Shirley; Hastings; Glanvilles Wootton; Devonshire; Llangollen (hawthorn); Scarborough; Manchester (elder and mountain ash); Northumberland district, local, on low plants in woods on the Irthing, and elsewhere; Scotland, Solway and Forth districts.

PROTEININÆ.

This sub-family contains two genera, which are distinguished from the Homaliinæ, to which they bear a strong affinity, by having no ocelli on the vertex of the head; the anterior coxæ are transverse, sublinear, and scarcely prominent, and the posterior coxæ are large and transverse; the antennæ are eleven-jointed and all the tarsi five-jointed; the species are chiefly found in fungi. The genera may be distinguished as follows:—

- I. Antennæ with joints 9–11 larger; mesosternum not carinate *PROTEINUS*, Latr.
- II. Antennæ with eleventh joint only larger; mesosternum carinate *MEGARTHURUS*, Steph.

PROTEINUS, Latreille.

This genus contains about a dozen or fifteen species, the majority of which are found in Europe; single species have, however, been described from California, Alaska, Japan, and Chili; there are four British species which may be distinguished by their different size and sculpture; mature specimens may be determined by the colour of the basal joints of the antennæ, but in immature specimens this is a somewhat variable character; they occur chiefly in fungi, but are also found in haystack refuse, &c.; in the male the seventh ventral segment of hind body is emarginate; the tarsi are all five-jointed.

The larva of *Proteinus brevicollis (ovalis)* is described by Chapuis and Candèze (Cat. des Larves des Coléoptères, p. 62): it is about 4 mm. in length, linear, sub-cylindrical, slightly narrowed in front and behind, and clothed with long, scattered, erect hairs; it is whitish with the head of a dirty-yellowish colour, and the thoracic segments of the same shade but rather clearer; the head is narrower than the thorax, and is almost quadrate; it has three ocelli on each side; the scutum of the prothorax is the most developed; the anal appendage is tubular and conical and used for progression, and the cerci have the first joint three times as long as the second; the larva is found in fungi.

- I. Length exceeding 1 mm.
 - i. Antennæ with first joint pitchy or dark pitchy red; sculpture of elytra rather strong; length 2 mm. *P. OVALIS*, Steph.
 - ii. Antennæ with first joint clear red; sculpture of elytra moderate; length 1½ mm. *P. BRACHYPTERUS*, Er.
 - iii. Antennæ with first two joints clear red; sculpture of elytra fine; length 1¼ mm. *P. MACROPTERUS*, Gyll.
- II. Length less than 1 mm.; antennæ, except club, red; sculpture of elytra fine *P. ATOMARIUS*, Er.

P. ovalis, Steph. (*brevicollis*, Er.). Oblong oval, rather convex, black, somewhat shining, clothed with rather sparse, but evident, greyish pubescence; head transverse triangular, very finely shagreened, with eyes prominent; antennæ entirely pitchy black, first joint occasionally dark pitchy red, first two joints much thickened, the last three or four forming a distinct club; thorax very transverse, narrower than elytra, very finely shagreened, and under a high magnifying power finely and diffusely punctured, with sides a little narrowed in front and almost straight behind, posterior angles almost right angles; elytra more than double as long as thorax, black with shoulders obscurely brownish, rather strongly sculptured, alutaceous; hind body oval, acuminate at apex, very finely and somewhat asperately punctured; legs testaceous. L. 2 mm.

In fungi, haystack refuse, decaying sea-weed, dung-heaps, &c.; common and generally distributed from the Midlands southwards; rarer further north; Northumberland district, rare (Morpeth, Gosforth, &c.); Scotland, rare, Solway and Forth districts; Ireland, Armagh.

P. brachypterus, F. (*lævicollis*, Heer). Very like the preceding, but considerably smaller, with the thorax rather longer and the elytra shorter in proportion; in mature specimens the first joint only of the antennæ is clear red; the elytra are unicolorous black, and not lighter at the shoulders, and are less strongly sculptured. L. $1\frac{1}{2}$ mm.

Found under the same circumstances as the preceding; common and generally distributed throughout England; Scotland, common in decaying vegetable matter, Solway, Tweed, Forth, Tay, Dee, Moray, and probably other districts; Ireland, Dublin and Belfast, and probably common throughout the country.

P. macropterus, Gyll. Smaller than the preceding, with the elytra brownish black, or pitchy brown; the antennæ have the first two joints clear red in mature specimens; the thorax is more finely shagreened and duller, and is more gradually rounded from a little before base to apex, and the elytra are much more finely sculptured. L. $1\frac{1}{4}$ mm.

In fungi, flood refuse, under dead leaves, &c.; local and not common; Esher, Chertenden, Claygate, Birch Wood, Balcombe, Shirley, Walton-on-Thames, Chatham, Sheerness, Tonbridge; Glanvilles Wootton; Devonshire; Salford Priors; Wicken Fen; Chat Moss; Mabblerley, Cheshire; Lincoln; Scotland, very rare, Solway district.

P. atomarius, Er. An exceedingly small species, somewhat resembling a large *Trichopteryx*; about half the size of the preceding, brownish, or brownish-black; the antennæ are testaceous with the exception of the club; the sculpture of the thorax and elytra is much as in *P. macropterus*, but the posterior angles of the former are sharper and more projecting; the hind body is extremely finely sculptured. L. $\frac{2}{3}$ mm.

In rotten fungi; local, and as a rule not common; London district, not uncommon, Darenth Wood, Faversham, Brasted, Shirley, Caterham, Esher, Ashted, Mickleham;

New Forest; Hunstanton, Norfolk; Scotland, local, Solway, Tweed, and Dee districts; Ireland, Portmarnock.

MEGARTHRUS, Stephens.

This genus contains about sixteen or seventeen species from Europe, Northern Asia, North America, and Japan; one or two only are found as far south as Madeira; they may easily be known by their transverse channelled thorax, of which the posterior angles are more or less excised, and by their very rough sculpture; the tarsi are five-jointed; there are five British species, which are found in haystack refuse, fungi, cut grass, &c.

- I. Upper surface black or pitchy black.
 - i. Basal joint of antennæ clear red; thorax feebly but perceptibly angled in middle of sides, sides straight or almost straight from angle to apex *M. DENTICOLLIS*, Beck.
 - ii. Antennæ entirely black.
 1. Thorax broadly bordered with red; thorax feebly but perceptibly angled in middle of sides, sides straight from angle to apex *M. AFFINIS*, Mill.
 2. Thorax unicolorous black.
 - A. Sides of thorax regularly rounded without trace of an angle in middle *M. DEPRESSUS*, Payk.
 - B. Sides of thorax evidently angled in middle and sinuate between angle and apex *M. SINUATOCOLLIS*, Lac.
- II. Upper surface, except head, entirely ferruginous red; sides of thorax angled and sinuate *M. HEMIPTERUS*, Ill.

M. denticollis, Beck. Pitchy black, rather dull, with margins of thorax reddish; head triangular, with eyes rather prominent, strongly depressed on each side and sharply raised in middle in a longitudinal keel, very closely and rugosely punctured; antennæ dark, with first joint clear red, slender, not much thickened towards apex, first two joints much broader than the following; thorax with an obsolete angle in middle of sides and thence straight or slightly rounded to apex, posterior angles sharply emarginate, the angle of the emargination being acute as the basal margin projects, central channel strongly marked, moderately strongly and rugosely sculptured; elytra twice as long as thorax, wider at apex than at base, sculptured like thorax, or slightly more strongly; hind body ovate, strongly acuminate at apex, very finely shagreened; legs reddish testaceous. L. 2 mm. -

Male with the seventh ventral segment of hind body slightly and the sixth deeply emarginate; the posterior femora in this sex are thickened, and the intermediate tibiæ are slightly curved, and emarginate before apex; the posterior trochanters also are strongly dilated.

In fungi, haystack refuse, &c.; local; rather rare in the south and common further north; London district, not common, Mickleham, Claygate, Forest Hill, Cowley, Sheerness, Tonbridge; Devonshire; Bath; commoner apparently in the Midland districts, Knowle, Yardley, Coleshill, Smallheath, Edgbaston, Repton, Sherwood Forest, &c.; Manchester; Northumberland district; Scotland, in fungus, common; Solway, Tweed, Forth, Dee, and probably other districts.

M. affinis, Mill. (*Bellevoeyi*, Sauley, *sinuatocollis*, Kr. nec Lac.). This species is very closely allied to the preceding, but may be distinguished by having the first joint of the antennæ black and by the shape of the thorax, in which the sides are a little more evidently, although slightly, angled in middle, and the posterior angles are less broadly and acutely emarginate; the head is not so strongly raised longitudinally in centre; the margins of the thorax are reddish as in *M. denticollis*; the elytra in Sauley's description are said to be a little longer and the shoulders less projecting, but this character is not very evident; the male characters at first sight are not distinct, but the intermediate femora are slightly thickened, and the intermediate tibiæ very slightly curved, and the seventh ventral segment of hind body is semicircularly emarginate. L. $1\frac{3}{4}$ –2 mm.

In cut grass, haystack refuse, &c.; not uncommon in England, but not recorded from Scotland; London district, generally distributed; The Holt, Farnham; Littleington, Sussex; Bath; Birmingham district; Repton; Liverpool; Northumberland district.

M. depressus, Lac. This species is easily distinguished from the others by having the sides of the thorax evenly rounded from the emargination of the posterior angles (which is slight and obtuse) to apex, and without a trace of an angle in the middle of sides, and also by its finer sculpture; the thorax is short, entirely black, finely sculptured, with central line distinct; the elytra are black, sometimes dark brown, rather finely but plainly sculptured; hind body very finely shagreened, lighter at apex. L. 2 mm.

Male with the posterior femora thickened and the tibiæ slightly sinuate.

In haystack refuse, dung-heaps, &c.; generally distributed throughout England and Scotland, and probably common in Ireland.

M. sinuatocollis, Lac. Distinguished from the preceding by the strongly angled and sinuate sides of the thorax, of which the posterior angles are rather strongly emarginate almost in a right angle, and also by its evidently stronger sculpture; the unicolorous black thorax, together with the shape of the thorax, will distinguish it from the first two species; in the latter character it somewhat resembles *M. hemipterus*, but may of course be at once known by its colour. L. 2 mm.

Male with the last ventral segment of hind body semicircularly emarginate, sixth not emarginate; posterior femora thickened, intermediate tibiæ slightly and posterior strongly sinuate.

In haystack refuse, cut grass, &c.; generally distributed and common throughout England and Scotland, and probably common in Ireland.

M. hemipterus, Ill. (*rufescens*, Steph., *nitiduloides*, Lac.). Entirely ferruginous red, with the head black, antennæ red with apex darker, and the legs reddish testaceous; head rather strongly raised longitudinally in front; thorax double as broad as long, with sides

angled and sinuate, shaped much as in the preceding species, posterior angles plainly emarginate, forming an acute angle with the basal margin which slightly projects; the general sculpture is moderately strong. L. $2-2\frac{1}{4}$ mm.

Male with the posterior femora slightly thickened, the intermediate tibiæ slightly curved, and the posterior sinuate on their inner side and dentate in the middle.

In putrid fungi; very local, but common where it occurs; Ashted, Claygate, Tilgate, Esher, Mickleham, Shirley, Darent Wood, Mereworth, Sevenoaks, Chatham, Sheerness, Tonbridge; Norfolk; Hastings; Glanvilles Wootton; St. Leonards Forest; New Forest; Parkhurst Forest, Isle of Wight; Devonshire; Swansea; Somersetshire and Shropshire (Stephens); there are no northern records except Solway district, very rare, "Raehills, Rev. W. Little," which requires confirmation; Stephens says that he used frequently to take it at roots of old fir trees near Hertford; in all probability there was fungoid growth in or near the spot in which the specimens occurred.

PHLEOBIINÆ.

The single genus that forms this sub-family is distinguished from all the other groups except the Proteininæ by its transverse and sublinear anterior coxæ, which are not prominent; it is by many authors classed with the latter group, but is distinguished from it by the presence of a single ocellus on the vertex, and by its shorter elytra; the tarsi are all five-jointed.

PHLEOBIUM, Lacordaire.

One species only is contained in this genus; in general appearance it is something like a *Megarthrur*, but may easily be distinguished superficially by its large transverse head, shorter elytra, and more parallel form; it is found in moss, &c., and is not uncommon in many parts of the country.

P. clypeatum, Müll. (*corticale*, Lac.). Oblong, rather depressed, of a dull reddish testaceous colour, with the head and disc of thorax often darker, clothed with fine short and diffuse whitish pubescence; head with eyes not much narrower than thorax, transversely oblong, strongly and rugosely punctured, with front border much raised, and dilated before eyes in two small ear-like prominences, eyes large, black; antennæ about as long as head and thorax together, black or blackish, with base and apex reddish; thorax very short, more than twice as broad as long, as broad as elytra, bisinuate at base, which is broadly produced in middle, and irregular and somewhat crenulate at sides, with evident central channel; elytra more than twice as long as thorax, rather strongly and thickly sculptured; hind body with at least four segments visible, finely and asperately sculptured; the sculpture of the front parts is often more or less raised in minute prominences; legs reddish testaceous. L. $2-2\frac{1}{2}$ mm.

Male with the seventh ventral segment angularly emarginate in middle of apical margin, with a triangular impression before the emargination traversed by a smooth channel with the sides slightly raised; intermediate and posterior femora very slightly dilated, with their tibiæ curved, thickened a little at base and apex and emarginate in middle.

In moss, at roots of grass, in dead leaves, and under bark of rotten trees infested with fungous growth; rather local in some parts of the country, but widely distributed throughout England, Scotland, and Ireland, and as a rule common; it has not, apparently, been recorded from the Northumberland district.

PHLÆOCHARINÆ.

This sub-family contains two genera, which are divided by some authors into three or four; in some points they bear a relation to the Oxytelinæ, and are chiefly separated from that group by reason of their strongly developed posterior trochanters; the tarsi are all five-jointed, and there are no ocelli on vertex of head.

- I. Head and thorax not margined, elytra with raised border not strong PHLÆOCHARIS, *Mannh.*
- II. Head and thorax with margins pronounced; elytra with raised border very strong PSEUDOPSIS, *Newm.*

PHLÆOCHARIS, Mannerheim.

This genus contains about six species from Europe, one from Algeria, and one from Syria; they strongly resemble small species of *Oxypoda*; they live under bark of trees, and are slow in their movements.

P. subtilissima, Mann. Very small, elongate, subfusiform, slightly convex, pitch-black, with the elytra lighter or darker pitchy brown, and the apical margin of segments of hind body reddish, pubescence greyish, rather long, fine, and close; head triangular, rather large, very finely punctured; antennæ about as long as head and thorax together, testaceous, with penultimate joints sometimes a little darker, transverse; thorax large, broader than, or at least as broad as, elytra, with sides rounded in front, very finely and thickly punctured; elytra longer than thorax, finely and rather thickly punctured; hind body elongate, narrowed gradually towards apex, which is more or less yellowish; legs reddish testaceous, sometimes a little dusky, with tarsi always lighter. L. $1\frac{1}{2}$ mm.

Sexual characters not evident; the thorax is sometimes wider than elytra, and sometimes of about the same width: this may be a difference due to sex.

Under bark of old trees, in moss on trunks, and among dry dead sticks, &c.; local and as a rule not common, but probably often overlooked; Sevenoaks, Esher, Tilgate Forest, Tonbridge; Ashdown Forest, Sussex; St. Leonards; Hastings; New Forest;

Oxfordshire; Sherwood Forest; Lincoln; Scarborough; Northumberland district; Scotland, under bark of Scotch fir, Tay, Dee, and Moray districts.

PSEUDOPSIS, Newman.

This genus at present appears to contain four species, which occur respectively in Europe, Colorado, Caraccas, and Chili; our British species is very distinct by reason of the strong raised lines on the thorax and elytra.

P. sulcata, Newm. Elongate-oblong, narrowed in front and behind, dark pitchy-red or brown, with the apex and raised margins of elytra lighter; head considerably narrower than thorax, rather long, with eyes not prominent, rugose, with three longitudinal keels, one in centre dividing into three before base, and two near eyes; antennæ rather short and stout, ferruginous; thorax moderately transverse, a little narrower than elytra, with sides rounded, lateral margins strong, explanate; the disc is furnished with four strong longitudinal keels, the intervals between which are excavate and rugose, the central one being traversed by a fine raised line; elytra subquadrate, a little transverse, with four strong raised keels (with rugose intervals), which are slightly curved inwards at apex, lateral margins raised; hind body rather long, finely rugose, with broad, strongly raised lateral margins; legs ferruginous, with tarsi paler. L. $3-3\frac{1}{2}$ mm.

In haystack refuse, old faggots, &c.; rare; Caterham, Reigate; Kingsgate (one specimen on the shore); Wicken Fen; Llangollen; Oxfordshire; Scarborough; Pendlebury, near Manchester, in decaying brake fern, &c.

PIESTINÆ.

This sub-family contains rather more than a dozen genera, of which only three are found in Europe, and one at least of these, *Trigonurus*, is separated from it by some authors; they are distinguished by their globose or subglobose anterior coxæ; the genus *Glyptoma* has the tarsi three-jointed, but in our single British genus, *Prognatha*, they are all five-jointed.

PROGNATHA, Latreille. (*Siagonium*, Kirby.)

This genus comprises about half-a-dozen species from Europe, North America, and Ceylon; our single British species is chiefly remarkable for the great development of the head and mandibles in male; it occurs under bark.

P. quadricornis, Lac. (*rufipennis*, Blond., *Siagonium 4-corne*, Kirby). Elongate, linear, depressed, almost glabrous, pitch-black, with the elytra and sometimes thorax chestnut-brown or reddish and the apex

of hind body red ; head transverse, more or less broad, rather sparingly punctured, with the clypeus, and the antennal projections in female, and the horns in male red ; antennæ very long in male, rather long in female, reddish ; thorax transverse, subcordiform, anterior margin bisinuate emarginate, with the angles blunt but distinct, sides narrowed and sinuate at base, posterior angles almost right angles, punctuation rather diffuse ; elytra much longer than thorax, with a well-marked sutural stria reaching apex, and four other plainly punctured striæ ceasing before apex ; hind body elongate, parallel, finely and rather thickly punctured ; legs red. L. $4-5\frac{1}{2}$ mm.

Male much larger than female, with head as broad as or broader than thorax, with two strong short blunt horns before eyes, and the mandibles furnished with two long curved horns which nearly meet when these are closed, and look like a second pair of mandibles ; antennæ very long ; in the female the antennæ are very much shorter and the head is narrower.

Under bark ; often on walls and palings ; local, but not uncommon in many places ; Chatham, Forest Hill, Cobham Park, Mickleham, Chobham, Peckham, Erith, Cowley, Addington, Tonbridge ; Kingsgate ; Norfolk ; Suffolk ; Winchester ; Exeter ; Needwood Forest ; Crewe's Pond, Repton ; Sherwood Forest ; not recorded from the north of England or from Scotland.

As this is going to press, I notice that my friend Mr. Champion has just (Nov. 1887) recorded the capture of *Ancyrophorus aureus*, Fauv. (*longipennis*, Wat. &c.), at Luccombe Chine, Isle of Wight. This capture is worth noticing, as the species has not been taken south of Yorkshire except by Mr. A. C. Horner at Tonbridge (v. p. 385).

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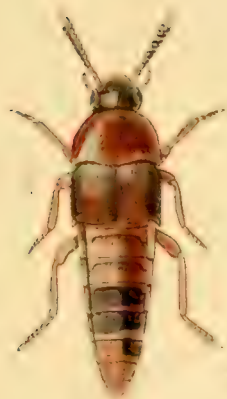
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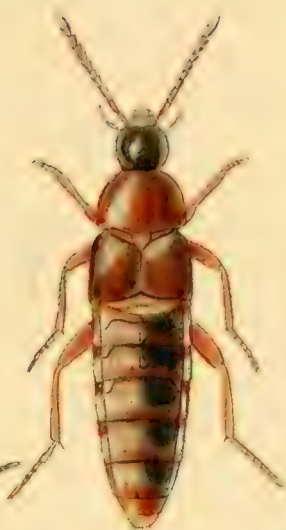
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pulchellus, Heer	320	cinnamomea, Grav.	61	longiventris, Heer	291
Syntomium, Er.	393	hospita, Maerk.	62	ochraceus, Gyll.	289
æneum, Müll.	393	Thectura, Thoms.	94	punctulatus, Payk.	289
		Thiasophila, Kr.	38	tricolor, F.	290
Tachinus, Grav.	199	angulata, Er.	38	Xenusa, Rey	146
v. bicolor, Grav.	205	diversa, Rey	39	Xylodromus, Heer	417
bipustulatus, F.	203	inquilina, Maerk.	39		
		Thinobæna, Thoms.	79	Zyras, Steph.	55

PLATE XXXVII.

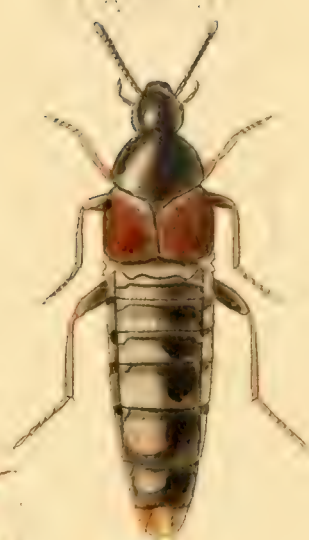
- FIG. 1. *Homœusa acuminata*, *Maerk.*
2. *Aleochara ruficornis*, *Grav.*
3. „ *fuscipes*, *F.*
4. „ *tristis*, *Grav.*
5. „ *bipunctata*, *Ol.*
6. „ *brevipennis*, *Grav.*
7. „ *lanuginosa*, *Grav.*
8. „ *mœsta*, *Grav.*
9. „ *algarum*, *Fauv.*
10. „ *obscura*, *Grav.*
11. „ *spadicea*, *Er.*
12. „ *mycetophaga*, *Kr.*
13. „ *brunneipennis*, *Kr.*



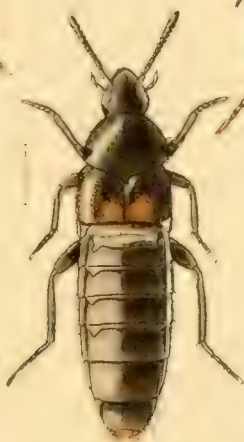
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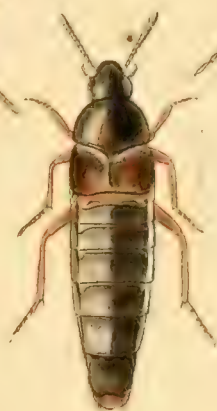
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3



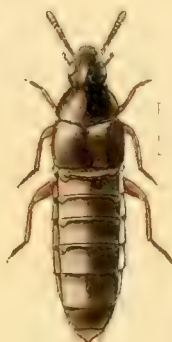
4



5



6



7



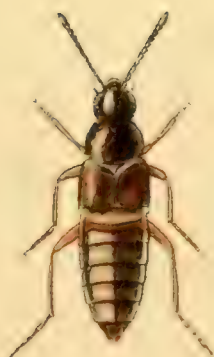
8



9



10



11



12



13

PLATE XXXVIII.

- FIG. 1. *Aleochara cuniculorum*, Kr.
 2. „ *nitida*, Grav.
 2a. „ „ *labium*.
 2b. „ „ *maxilla*.
 3. „ *morion*, Grav.
 4. *Microglossa suturalis*, Mann.
 5. „ *nidicola*, Fairm.
 6. „ *gentilis*, Maerk.
 7. *Oxypoda spectabilis*, Maerk.
 8. „ *lividipennis*, Mann.
 8a. „ „ ventral plate of 7th segment
 of hind body of male.
 9. „ *opaca*, Grav.
 9a. „ „ maxillary palpus.
 10. „ *alternans*, Grav.
 11. „ *exoleta*, Er.
 12. „ *lentula*, Er.
 13. „ *umbrata*, Grav.



PLATE XXXIX.

- FIG. 1 *Oxypoda pectita*, *Sharp*.
2. „ *longiuscula*, *Er*.
3. „ *rupicola*, *Rye*.
4. „ *soror*, *Thoms*.
5. „ *recondita*, *Kr*.
6. „ *formiceticola*, *Maerk*.
7. „ *hæmorrhœa*, *Mann*.
8. „ *annularis*, *Sahlb*.
9. „ *brachyptera*, *Steph*.
10. „ *misella*, *Kr*.
11. *Thiasophila angulata*, *Er*.
12. *Ischnoglossa proluxa*, *Grav*.
13. *Ocyusa maura*, *Er*.



PLATE XL.

- FIG. 1. *Ocyusa incrassata*, *Kr.*
2. ,, *hibernica*, *Rye.*
3. *Phlæopora reptans*, *Grav.*
4. *Ocalea castanea*, *Er.*
5. ,, *badia*, *Er.*
6. *Ilyobates nigricollis*, *Payk.*
7. ,, *forticornis*, *Lac.*
8. ,, *glabriventris*, *Rye.*
9. *Calodera nigrita*, *Mann.*
10. ,, *riparia*, *Er.*
11. ,, *umbrosa*, *Er.*
12. *Chilopora longitarsis*, *Er.*
13. ,, *rubicunda*, *Er.*



1. *Staphylinus*

14. *Staphylinus*

PLATE XLI.

- FIG. 1. *Dinarda Maerkeli*, *Kies*.
2. *Atemeles emarginatus*, *Grav*.
3. „ *paradoxus*, *Grav*.
4. *Myrmedonia Haworthi*, *Steph*.
5. „ *collaris*, *Payk*.
6. „ *humeralis*, *Grav*.
7. „ *cognata*, *Maerk*.
8. „ *funesta*, *Grav*.
9. „ *limbata*, *Payk*.
9a. „ „ extremity of hind body of
male.
10. „ *lugens*, *Grav*.
11. „ *laticollis*, *Maerk*.
12. „ *plicata*, *Er*.
13. *Astilbus canaliculatus*, *F*.



PLATE XLII.

- FIG. 1. *Thamiaræa cinnamomea*, *Grav.*
2. ,, *hospita*, *Maerk.*
3. *Notothecta flavipes*, *Grav.*
4. ,, *confusa*, *Maerk.*
5. ,, *anceps*, *Er.*
6. *Alianta incana*, *Er.*
7. ,, *plumbea*, *Wat.*
8. *Homalota languida*, *Er.*
9. ,, *pavens*, *Er.*
10. ,, *planifrons*, *Wat.*
11. ,, *vestita*, *Grav.*
12. ,, *nitidula*, *Kr.*
13. ,, *vicina*, *Steph.*



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PLATE XLIII.

- FIG. 1. Homalota currax, *Kr.*
2. „ insecta, *Thoms.*
3. „ cambrica, *Woll.*
4. „ gregaria, *Er.*
5. „ eximia, *Sharp.*
6. „ longula, *Heer.*
7. „ littorea, *Sharp.*
8. „ luteipes, *Er.*
9. „ fallax, *Kr.*
10. „ luridipennis, *Mann.*
11. „ Gyllenhali, *Thoms.*
(londinensis, Sharp).
12. „ volans, *Scriba.*
13. „ tibialis, *Heer.*



PLATE XLIV.

- FIG. 1. Homalota pagana, *Er.*
2. „ graminicola, *Gyll.*
3. „ halobrectha, *Sharp.*
4. „ princeps, *Sharp.*
5. „ occulta, *Er.*
6. „ nigella, *Er.*
7. „ monticola, *Thoms.*
8. „ æquata, *Er.*
9. „ angustula, *Gyll.*
10. „ linearis, *Grav.*
11. „ debilis, *Er.*
12. „ deformis, *Kr.*
13. „ cæsula, *Er.*

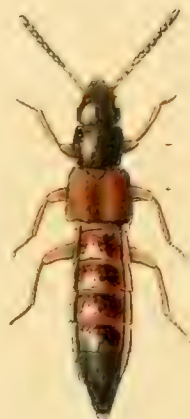
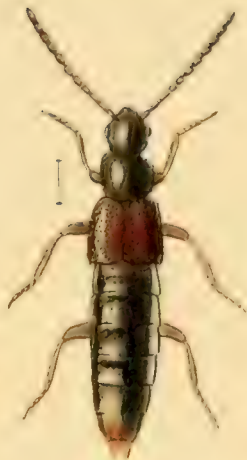
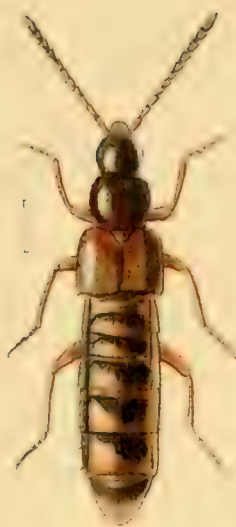


PLATE XIV.

FIG. 1. Homalota circellaris, Grav.

- | | | | |
|-----|----|----|---|
| 1a. | ,, | ,, | apical segments of hind body
in male. |
| 2. | ,, | | elegantula, Bris. |
| 3. | ,, | | splendens, Kraatz. |
| 4. | ,, | | immersa, Er. |
| 5. | ,, | | cuspidata, Er. |
| 5a. | ,, | ,, | upper surface of portion of hind
body in male (after Mulsant). |
| 6. | ,, | | cribriceps, Sharp. |
| 7. | ,, | | eremita, Rye. |
| 8. | ,, | | gemina, Er. |
| 9. | ,, | | nalis, Grav. |
| 9a. | ,, | ,, | apical segments of hind body in
male. |
| 9b. | ,, | | soror, Kraatz, apical segments of hind
body in male. |
| 10. | ,, | | exilis, Er. |
| 11. | ,, | | pallens, Redt. |
| 12. | ,, | | palleola, Er. |
| 13. | ,, | | parallela, Mannh. |



PLATE XLVI.

- FIG. 1. Homalota depressa, *Gyll.*
2. „ aquatica, *Thoms.*
3. „ xanthoptera, *Steph.*
4. „ trinotata, *Kraatz.*
5. „ boletobia, *Thoms.*
6. „ liturata, *Steph.*
7. „ gagatina, *Baudi.*
7a. „ „ apical segments of hind body
in male (after Mulsant).
8. „ palustris, *Kies.*
9. „ corvina, *Thoms.*
10. „ atomaria, *Kraatz.*
11. „ perexigua, *Sharp.*
12. „ scapularis, *Sahlb.*
13. „ dilaticornis, *Kraatz.*

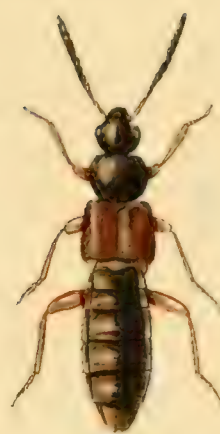
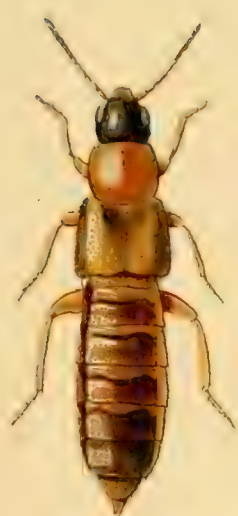


FIG. 1. *Homalota autumnalis*, *Er.*

- | | | | |
|------|---|---|---|
| 1a. | „ | „ | apical segments of abdomen
in male (after Mulsant) . |
| 2. | „ | | sericea, <i>Muls.</i> |
| 3. | „ | | nigra, <i>Kraatz.</i> |
| 4. | „ | | canescens, <i>Sharp.</i> |
| 5. | „ | | cauta, <i>Er.</i> |
| 6. | „ | | lævana, <i>Muls. et Rey.</i> |
| 7. | „ | | cinnamoptera, <i>Thoms.</i> |
| 8. | „ | | atramentaria, <i>Gyll.</i> |
| 9. | „ | | marcida, <i>Er.</i> |
| 10. | „ | | longicornis, <i>Grav.</i> |
| 11. | „ | | consanguinea, <i>Epp.</i> |
| 12. | „ | | sordida, <i>Marsh.</i> |
| 13. | „ | | pygmæa, <i>Grav.</i> |
| 13a. | „ | „ | first joints of posterior tarsus. |
| 13b. | | | First joints of posterior tarsus in <i>H. aterrima</i> ,
<i>Grav., &c.</i> |



PLATE XLVIII.

- FIG. 1. *Homalota laticollis*, *Steph.*
2. ,, *montivagans*, *Woll.*
3. ,, *fungi*, *Grav.*
4. ,, *cribrata*, *Kraatz.*
5. *Gnypeta labilis*, *Er.*
6. ,, *cœrulea*, *Sahlb.*
7. *Tachyusa constricta*, *Er.*
8. ,, *flavitaris*, *Sahlb.*
9. ,, *umbratica*, *Er.*
10. ,, *atra*, *Grav.*
11. ,, *concolor*, *Er.*
12. *Myrmecopora uvida*, *Er.*
13. *Borboropora Kraatzi*, *Fuss.*
13a. ,, ,, right mandible of male.



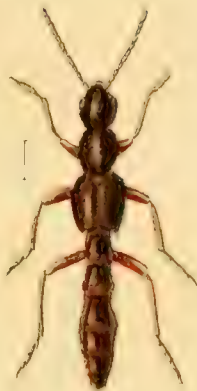
1



2



4



5



7



8



6



9



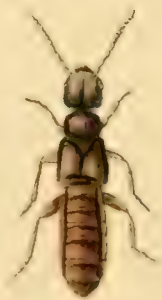
10



11



12



13

PLATE XLIX.

- FIG. 1. *Falagria thoracica*, *Curt.*
2. „ *sulcata*, *Payk.*
3. *Autalia impressa*, *Ol.*
3a. „ „ *labium.*
4. „ *puncticollis*, *Sharp.*
5. *Encephalus complicans*, *Westw.*
6. *Brachida notha*, *Er.*
7. *Gyrophæna gentilis*, *Er.*
8. „ *affinis*, *Mannh.*
9. „ *lucidula*, *Er.*
10. „ *strictula*, *Er.*
11. *Agaricochara lævipennis*, *Kr.*
12. *Placusa infima*, *Er.*
13. *Epipeda plana*, *Gyll.*



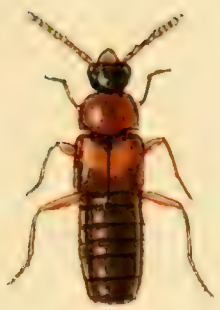
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Ed. Long, del, et lith

L. Reeve & Co. Lith.

PLATE L.

- FIG. 1. *Silusa rubiginosa*, *Er.*
2. *Actocharis Readingii*, *Sharp.*
3. *Euryusa laticollis*, *Heer.*
4. *Leptusa analis*, *Gyll.*
5. *Sipalia ruficollis*, *Er.*
6. „ *testacea*, *Bris.*
7. *Bolitochara lucida*, *Grav.*
8. „ *bella*, *Maerk.*
9. „ *obliqua*, *Er.*
10. *Phytosus spinifer*, *Curt.*
11. „ *balticus*, *Kr.*
12. *Diglossa mersa*, *Hal.*
13. *Hygronoma dimidiata*, *Grav.*



1.



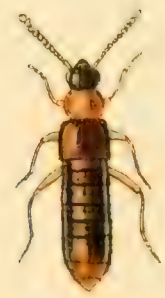
2.



3.



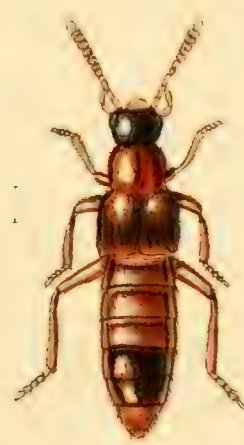
4.



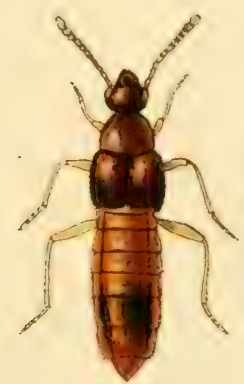
5.



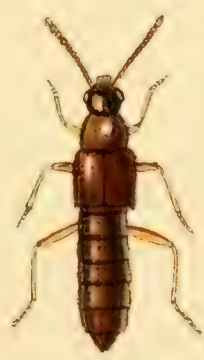
6.



8.



7.



9.



10.



12.



11.



13.

PLATE LI.

- FIG. 1. *Oligota inflata*, *Mannh.*
2. „ *granaria*, *Er.*
3. „ *flavicornis*, *Lac.*
4. „ *apicata*, *Er.*
5. *Myllæna intermedia*, *Er.*
5a. „ „ „ labium.
5b. „ „ „ maxillary palpus.
6. „ *elongata*, *Matth.*
7. „ *brevicornis*, *Matth.*
8. „ *Masoni*, *Matth.*
9. „ *Fowleri*, *Matth.*
10. *Gymnusa brevicollis*, *Payk.*
11. „ *variegata*, *Kies.*
12. *Deinopsis erosa*, *Steph.*



1.



2.



3.



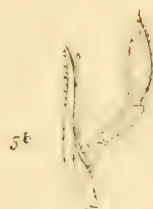
4.



5.



6.



5^b



5^a



8.



7.



9.



10.



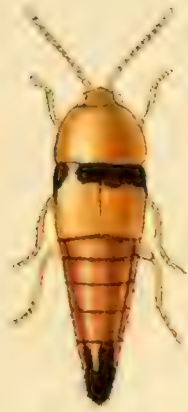
11.



12.

PLATE LII.

- FIG. 1. Tachyporus obtusus, *L.*
2. „ formosus, *Matth.*
3. „ hypnorum, *F.*
4. Conosoma pubescens, *Grav.*
5. „ littoreum, *L.*
6. Tachyporus chrysomelinus, *L.*
7. „ obtusus *var.* nitidicollis, *Steph.*
8. „ transversalis, *Grav.*
9. Hypocyptus longicornis, *Payk.*
10. „ seminulum, *Er.*
11. Conosoma bipunctatum, *Grav.*
12. Tachyporus pallidus, *Sharp.*
13. Conosoma lividum, *Er.*



1



2



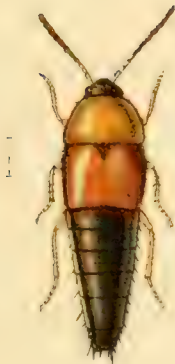
3



4



5



6



7



8



9



10



11



12



13

PLATE LIII.

- FIG. 1. *Lamprinus saginatus*, *Grav.*
2. *Cilea silphoides*, *L.*
3. *Tachinus rufipennis*, *Gyll.*
4. ,, *humeralis*, *Grav.*
5. ,, *rufipes*, *L.*
5a. ,, ,, apex of hind body of male.
5b. ,, ,, apex of hind body of female.
6. ,, *scapularis*, *Steph.*
7. ,, *subterraneus*, *L.*
8. ,, *collaris*, *Grav.*
9. ,, *elongatus*, *Gyll.*
10. *Megacronus inclinans*, *Grav.*
10a. ,, ,, maxillary palpus.
11. ,, *analis*, *Payk.*
12. ,, *cingulatus*, *Mannh.*
13. *Bryoporus castaneus*, *Hardy.*
13a. ,, ,, maxillary palpus.



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PLATE LIV.

- FIG. 1. *Bolitobius lunulatus*, *L.*
2. ,, *trinotatus*, *Er.*
3. ,, *exoletus*, *Er.*
4. ,, *pygmæus*, *F.*
4a. ,, ,, maxillary palpus.
5. *Mycetoporus lucidus*, *Er.*
6. ,, *punctus*, *Gyll.*
7. ,, *longulus*, *Mannh.*
7a. ,, ,, maxillary palpus.
8. ,, *angularis*, *Rey.*
9. ,, *nanus*, *Er.*
10. ,, *clavicornis*, *Steph.*
11. *Habrocerus capillaricornis*, *Grav.*
11a. ,, ,, antenna.
12. *Mycetoporus splendidus*, *Grav.*
13. *Trichophya pilicornis*, *Gyll.*
13a. ,, ,, antenna.



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PLATE LV.

- FIG. 1. *Heterothops binotata*, *Er.*
2. „ *quadripunctula*, *Gyll.*
3. *Acylophorus glabricollis*, *Boisd.*
4. *Euryporus picipes*, *Payk.*
5. *Velleius dilatatus*, *F.* (natural size).
6. *Quedius longicornis*, *Kr.*
7. „ *microps*, *Grav.*
8. „ *ventralis*, *Ar.*
9. „ *lateralis*, *Grav.*
10. „ *mesomelinus*, *Marsh.*
11. „ *puncticollis*, *Thoms.*
12. „ *fulgidus*, *F.*
13. „ *xanthopus*, *Er.*



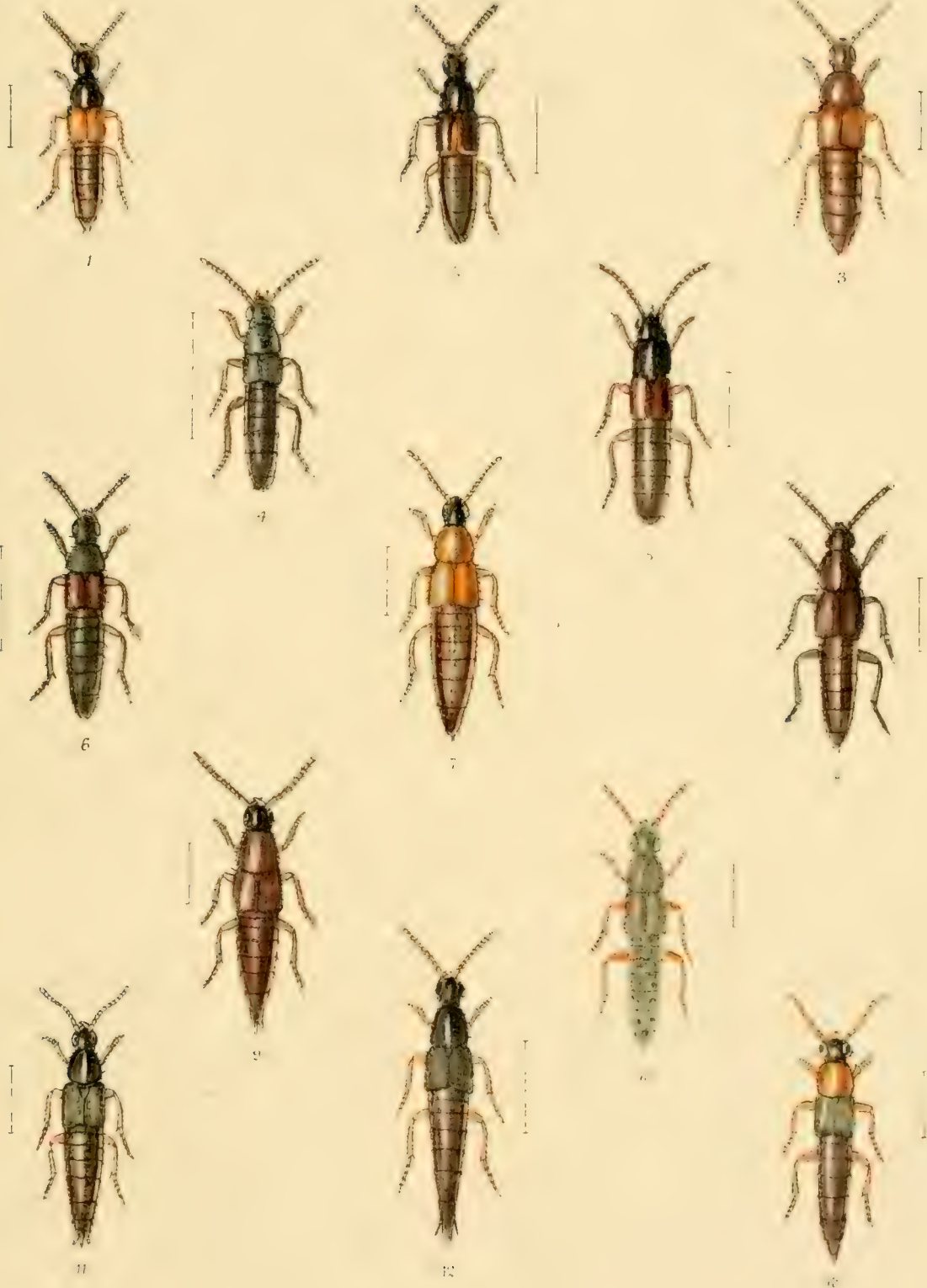
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PLATE LVI.

- FIG. 1. *Quedius scitus*, Grav.
2. „ *cinctus*, Payk.
3. „ *brevis*, Er.
4. „ *fuliginosus*, Grav.
5. „ *molochinus*, Grav.
6. „ *picipes*, Mannh.
7. „ *nigriceps*, Kr.
8. „ *fumatus*, Steph.
9. „ *suturalis*, Kies.
10. „ *auricomus*, Kies.
11. „ *semiæneus*, Steph.
12. „ *rufipes*, Grav.
13. „ *fulvicollis*, Steph.



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PLATE LVII.

- FIG. 1. *Quedionuchus lævigatus*, *Gyll.*
2. *Creophilus maxillosus*, *L.*
3. *Emus hirtus*, *L.*
4. *Leistotrophus nebulosus*, *F.*
5. ,, *murinus*, *L.*
6. *Staphylinus pubescens*, *De G.*
7. ,, *fulvipes*, *Scop.*
8. ,, *stercorarius*, *Ol.*
9. ,, *latebricola*, *Grav.*
10. ,, *erythropterus*, *L.*
11. ,, *cæsareus*, *Ceder.*
12. *Ocypus olens*, *Müll.*
12a. ,, ,, *mandible.*
13. ,, *similis*, *F.*



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PLATE LVIII.

- FIG. 1. *Ocypus cyaneus*, *Payk.*
2. „ *brunnipes*, *F.*
3. „ *fuscatus*, *Grav.*
4. „ *cupreus*, *Rossi.*
5. „ *pedator*, *Grav.*
6. „ *ater*, *Grav.*
7. „ *morio*, *Grav.*
7a. „ „ *mandible.*
8. „ *compressus*, *Marsh.*
9. *Philonthus splendens*, *F.*
10. „ *laminatus*, *Creutz.*
11. „ *æneus*, *Rossi.*
12. „ *decorus*, *Grav.*
13. „ *politus*, *F.*



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W. and A. Brown, J. & S. Co. L.

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PLATE LIX.

- FIG. 1. *Philonthus varius*, var. *bimaculatus*, *Grav.*
2. ,, *marginatus*, *F.*
3. ,, *lepidus*, *Grav.*
4. ,, *albipes*, *Grav.*
5. ,, *umbratilis*, *Grav.*
6. ,, *finetarius*, *Grav.*
7. ,, *fuscus*, *Grav.*
8. ,, *ebeninus*, var. *coruscus*, *Grav.*
9. ,, *sanguinolentus*, *Grav.*
10. ,, *cruentatus*, *Gmel.*
11. ,, *vernalis*, *Grav.*
12. ,, *discoideus*, *Grav.*
13. ,, *quisquiliarius*, var. *dimidiatus*, *Grav.*



R. Moréau del.

Ed. de la Société de France.

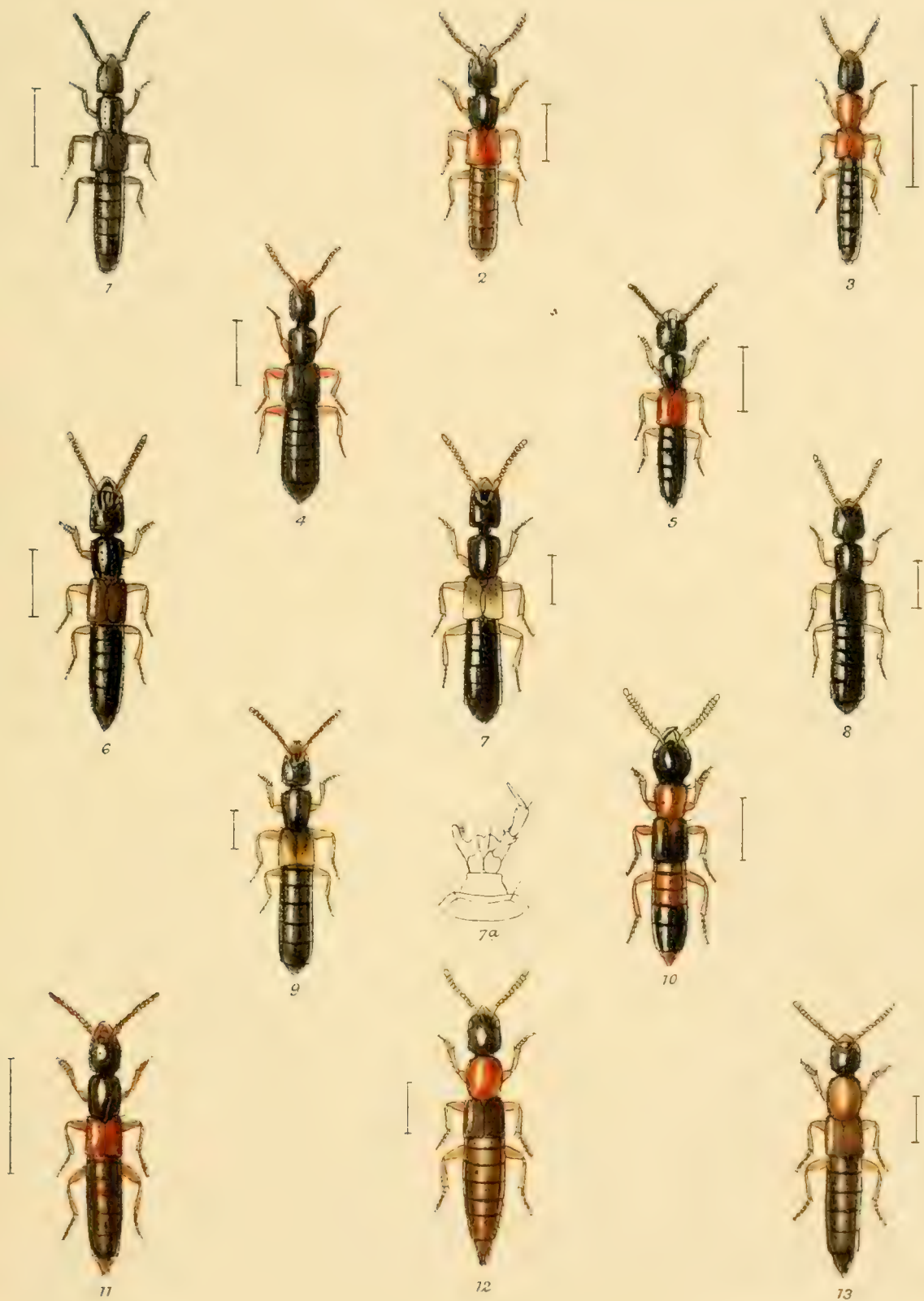
PLATE LX.

- FIG. 1. *Philonthus thermarum*, *Aubé*.
2. ,, *astutus*, *Er*.
3. ,, *trossulus*, *Nord*.
4. ,, *fulvipes*, *F*.
5. ,, *punctus*, *Grav*.
6. *Cafius cicatricosus*, *Er*.
7. ,, *fucicola*, *Curt*.
8. ,, *xantholoma*, *Grav*.
9. ,, *sericeus*, *Holme*.
10. *Actobius signaticornis*, *Rey*.
11. ,, *prolixus*, *Er*.
12. *Xantholinus fulgidus*, *F*.
13. ,, *glabratus*, *Grav*.
13a. ,, ,, *clytra*.



PLATE LXI.

- FIG. 1. *Xantholinus punctulatus*, *Payk.*
2 „ *glaber*, *Nord.*
3. „ *tricolor*, *F.*
4. „ *longiventris*, *Heer.*
5. *Nudobius lentus*, *Er.*
6. *Leptacinus parumpunctatus*, *Gyll.*
7. „ *batychnus*, *Gyll.*
7a. „ „ *labium.*
8. „ *linearis*, *Grav.*
9. „ *formicetorum*, *Maerk.*
10. *Baptolinus alternans*, *Grav.*
11. *Othius fulvipennis*, *F.*
12. „ *melanocephalus*, *Grav.*
13. „ *myrmecophilus*, *Kies.*



R. Morgan, del. et lith.

Vincent Brooks, Day & Son, Imp.

L. Reeve & Co. London

[illegible]

FIG. 1. *Lathrobium elongatum*, *L.*

- | | | | |
|-----|---|---|---|
| 1a. | „ | „ | apical ventral segments of hind body in male (after Mulsant). |
| 2. | „ | | fulvipenne, <i>Grav.</i> |
| 3. | „ | | rufipenne, <i>Gyll.</i> |
| 4. | „ | | angustatum, <i>Lac.</i> |
| 5. | „ | | brunnipes, <i>F.</i> |
| 6. | „ | | longulum, <i>Grav.</i> |
| 7. | „ | | quadratum, <i>Payk.</i> |
| 8. | „ | | terminatum, <i>Grav.</i> |
| 9. | „ | | pallidum, <i>Nord.</i> |
| 10. | „ | | multipunctum, <i>Grav.</i> |
| 11. | „ | | angusticolle, <i>Lac.</i> |
| 12. | | | <i>Achenium depressum, Grav.</i> |
| 13. | „ | | humile, <i>Nic.</i> |



R. Morgan Jnr. et lith.

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PLATE LXIII.

- FIG. 1. *Cryptobium glaberrimum*, *Herbst*.
2. *Stilicus fragilis*, *Grav*.
3. „ *rufipes*, *Germ*.
4. „ *affinis*, *Er*.
5. *Scopæus Erichsoni*, *Kol*.
6. *Medon pocofer*, *Peyr*.
7. „ *brunneus*, *Er*.
8. „ *obsoletus*, *Nord*.
9. „ *melanocephalus*, *F*.
10. *Lithocharis ochracea*, *Grav*.
11. *Sunius intermedius*, *Er*.
12. „ *diversus*, *Aubé*.
13. *Pæderus littoralis*, *Grav*.



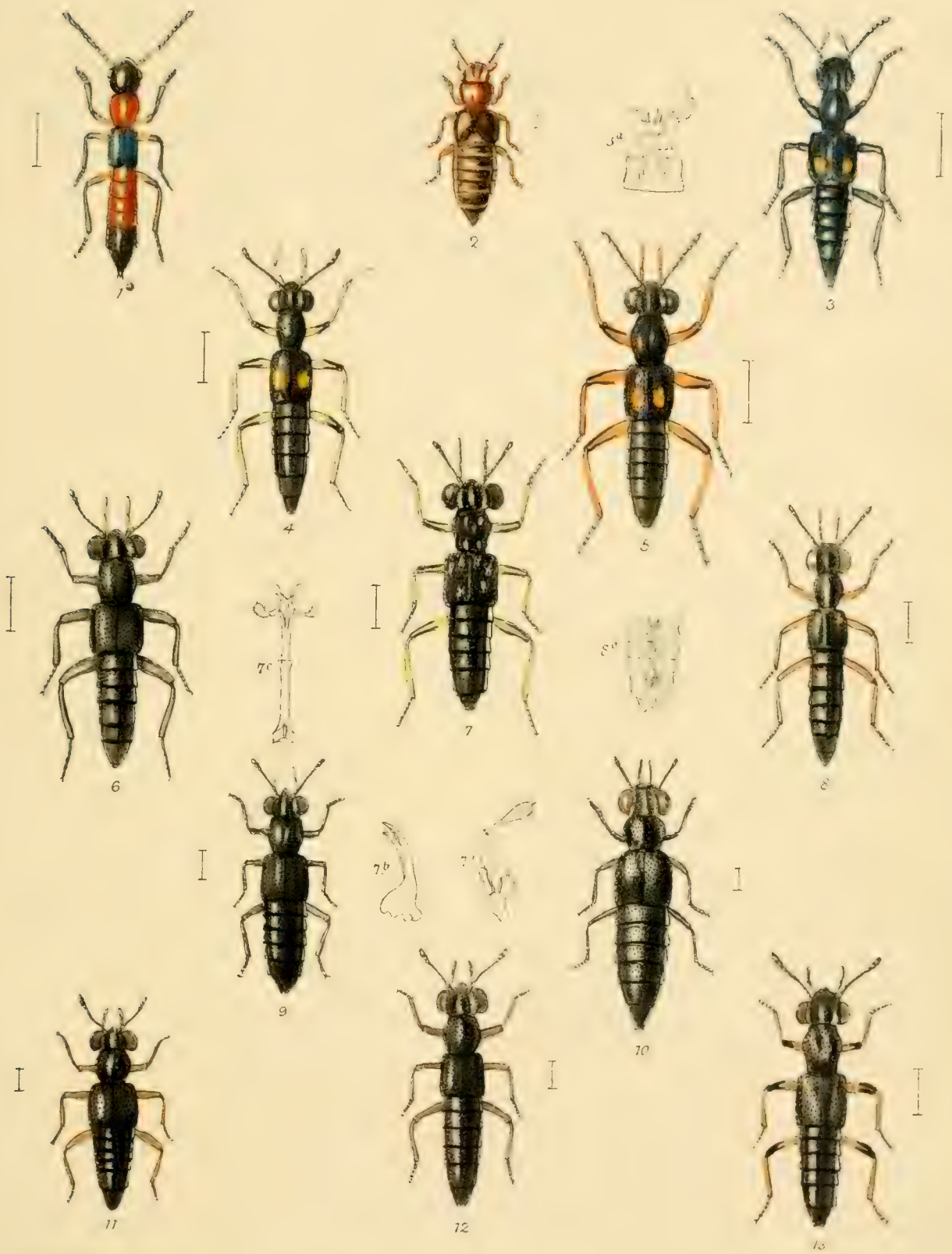
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PLATE LXIV.

- FIG. 1. *Pæderus caligatus*, *Er.*
 2. *Evæsthetus læviusculus*, *Mannh.*
 3. *Dianous cœrulescens*, *Gyll.*
 3a. „ „ „ labium.
 4. *Stenus guttula*, *Müll.*
 5. „ *bimaculatus*, *Gyll.*
 6. „ *Juno*, *F.*
 7. „ *Guynemeri*, *Duv.*
 7a. „ „ „ maxilla.
 7b. „ „ „ mandible.
 7c. „ „ „ ligula.
 8. „ *lustrator*, *Er.*
 8a. „ „ „ ventral segments of hind body
 in male.
 9. „ *melanopus*, *Marsh.*
 10. „ *pusillus*, *Er.*
 11. „ *circularis*, *Grav.*
 12. „ *brunnipes*, *Steph.*
 13. „ *subæneus*, *Er.*



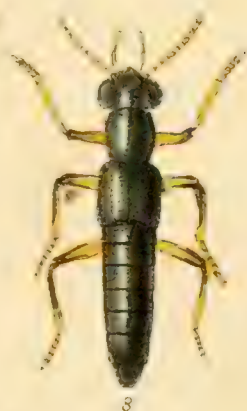
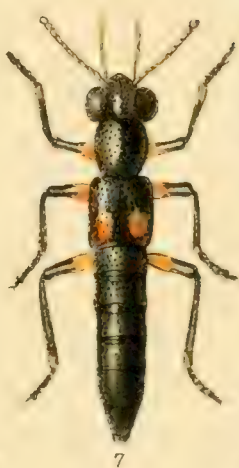
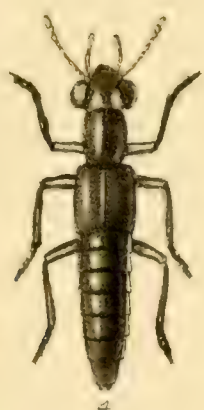
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PLATE LXV.

- FIG. 1. *Stenus impressus*, *Germ.*
2. „ *Erichsoni*, *Rye.*
3. „ *flavipes*, *Steph.* (*filum*, *Er.*).
4. „ *pubescens*, *Steph.*
5. „ *nitidiusculus*, *Steph.*
6. „ *picipennis*, *Er.*
7. „ *Kiesenwetteri*, *Rosh.*
8. „ *similis*, *Herbst.*
9. „ *cicindeloides*, *Grav.*
10. „ *tarsalis*, *Ljungh.*
11. „ *fornicatus*, *Steph.*
12. *Oxyporus rufus*, *L.*
12a. „ „ *maxilla.*
13. *Bledius taurus*, *Germ.*
13a. „ „ (head of male viewed sideways).



Phaenocarpa

Phaenocarpa

Phaenocarpa

PLATE LXVI.

- FIG. 1. *Bledius spectabilis*, *Kr.*
2. „ *unicornis*, *Germ.*
3. „ *arenarius*, *Payk.*
4. „ *subterraneus*, *Er.*
5. „ *opacus*, *Block.*
6. „ *crassicollis*, *Lac.*
7. „ *dissimilis*, *Er.*
8. *Platystethus arenarius*, *Fourc.*
9. „ *nodifrons*, *Sahlb.*
10. *Oxytelus rugosus*, *Grav.*
11. „ *insecatus*, *Grav.*
12. „ *laqueatus*, *Marsh.*
13. „ *tetracarinatus*, *Block.*



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PLATE LXVII.

- FIG. 1. Haploderus cœlatus, *Grav.*
2. Ancyrophorus aureus, *Fauv.*
3. Trogophlœus arcuatus, *Steph.*
4. „ fuliginosus, *Grav.*
5. „ pusillus, *Grav.*
6. Thinobius longipennis, *Heer.*
7. „ brevipennis, *Kies.*
8. Syntomium æneum, *Müll.*
9. Coprophilus striatulus, *F.*
10. Acrognathus mandibularis, *Gyll.*
11. Compsochilus palpalis, *Er.*
12. Deleaster dichrous, *Grav.*
13. Anthophagus testaceus, *Grav.*



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PLATE LXVIII.

- FIG. 1. *Anthophagus alpinus*, *Payk.* (male).
2. *Geodromicus nigrita*, *Müll.*
3. *Lesteva longelytrata*, *Goeze.*
4. „ *pubescens*, *Mannh.*
4a. „ „ *maxilla.*
5. „ *sicula*, *Er.* (*punctata*, *Brit. Cat.*).
6. *Acidota crenata*, *F.*
7. „ *cruentata*, *Mannh.*
8. *Olophrum piceum*, *Gyll.*
9. *Lathrimæum atrocephalum*, *Gyll.*
10. *Deliphrum tectum*, *Payk.*
11. „ *crenatum*, *Grav.*
12. *Arpedium brachypterum*, *Grav.*
13. *Micralymma brevipenne*, *Gyll.*



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PLATE LXIX.

- FIG. 1. *Philorhinum sordidum*, *Steph.*
2. *Coryphium angusticolle*, *Steph.*
3. *Homalium rivulare*, *Payk.*
4. „ *rugulipenne*, *Rye.*
5. „ *Allardi*, *Fairm.*
6. „ *nigriceps*, *Kies.*
7. „ *pusillum*, *Grav.*
8. „ *monilicorne*, *Gyll.*
9. „ *rufipes*, *Fourc.*
10. „ *iopterum*, *Steph.*
11. „ *planum*, *Payk.*
12. „ *concinnum*, *Marsh.*
13. „ *striatum*, *Grav.*



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PLATE LXX.

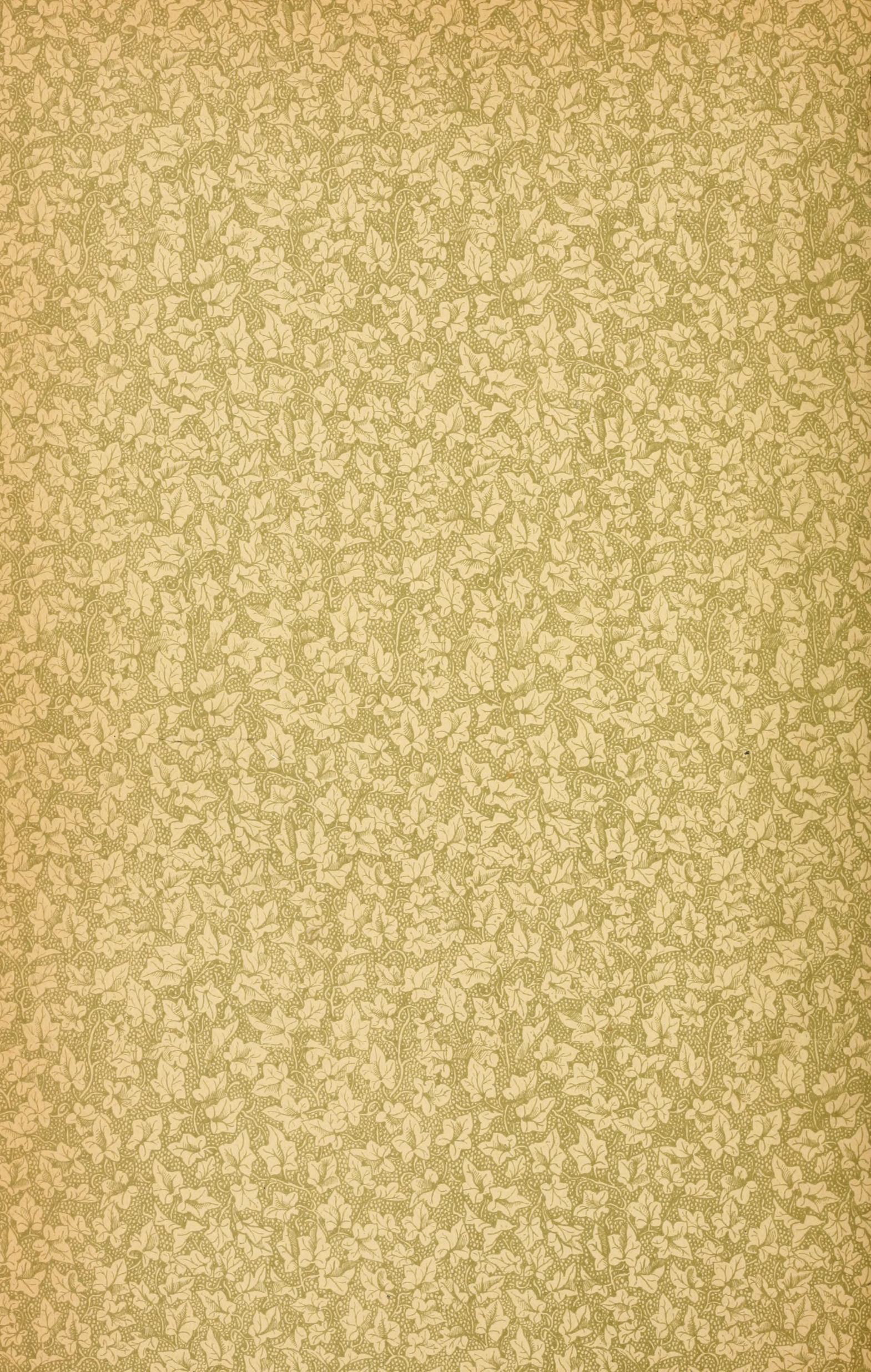
- FIG. 1. *Hapalaræa pygmæa*, *Gyll.*
2. *Acrulia inflata*, *Gyll.*
3. *Eusphalerum primulæ*, *Steph.*
4. *Anthobium minutum*, *F.*
5. „ *torquatum*, *Marsh.*
6. „ *ophthalmicum*, *Payk.*
7. *Proteinus ovalis*, *Steph.*
8. *Megarthus sinuatocollis*, *Lac.*
9. „ *hemipterus*, *Ill.*
10. *Phlæobium clypeatum*, *Müll.*
11. *Phlæccharis subtilissima*, *Mannh.*
12. *Pseudopsis sulcata*, *Newm.*
13. *Prognatha quadricornis*, *Lac.*



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